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VSN Mobil's 360-Degree Action Cam Captures It All



SONY GETS ANDROID SMART

The 65-Inch XBR-65X850C Has A Cool New GUI



SOUND & VISION

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ANDREW
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A BOX OF BRYSTONS FOR UNDER \$5K: The Price-Conscious Mini A Is A Winner

WHAT'S IN A \$600 AV RECEIVER?

**THREE TOP
BUDGET
MODELS
REVIEWED**

FROM PIONEER,
SONY & ONKYO



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BUY AN AVR**

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**ULTRA HD ON THE
MEGA-CHEAP**

VIZIO'S
NEW
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THE
VALUE



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THE LATEST UPDATE
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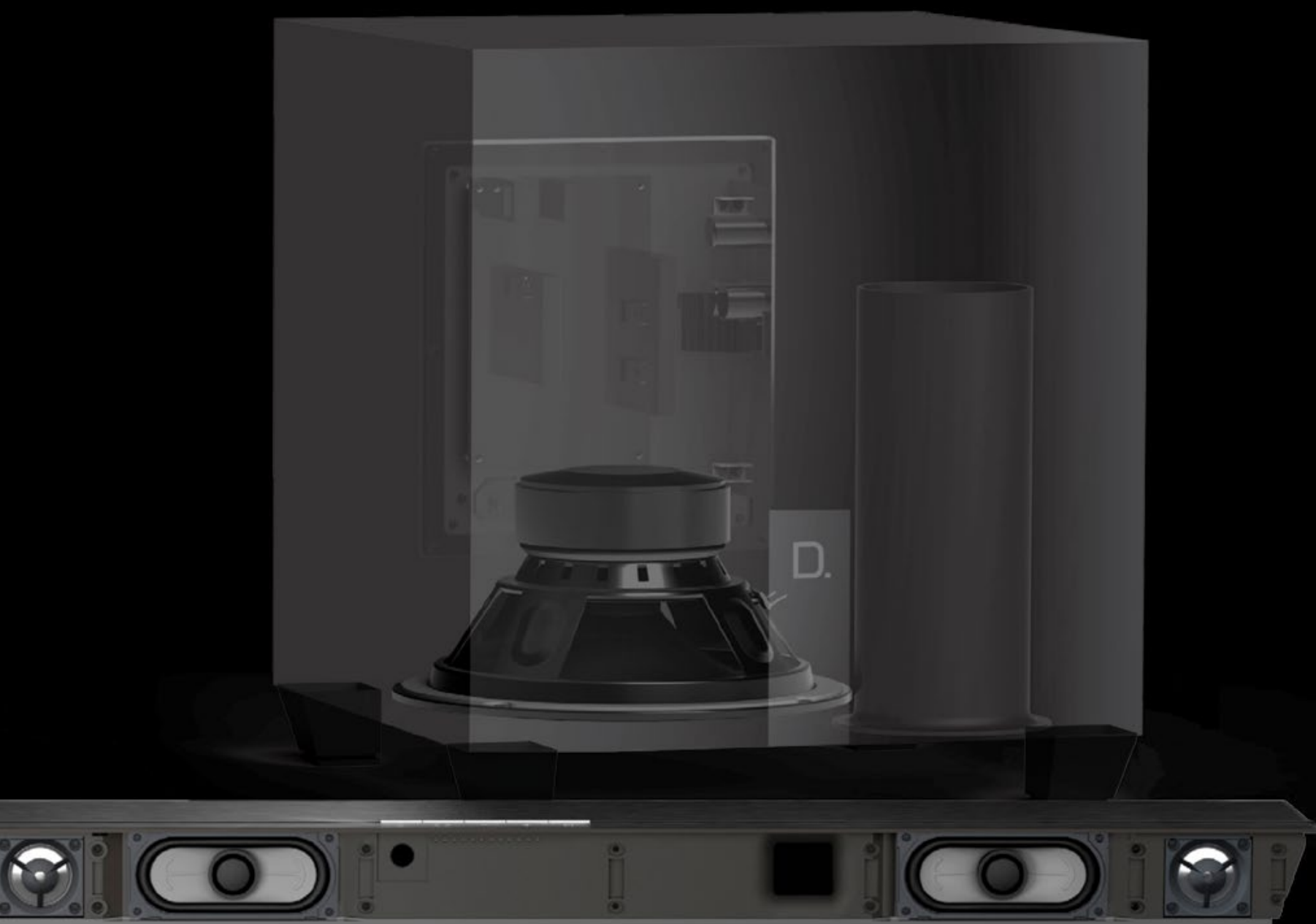


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Preview

ON THE COVER What's in a \$600 AV Receiver? Top budget models from Pioneer, Sony, and Onkyo. Additional gear from Bryston, Klipsch, Vizio, and VSN Mobil.



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How to Buy an A/V Receiver



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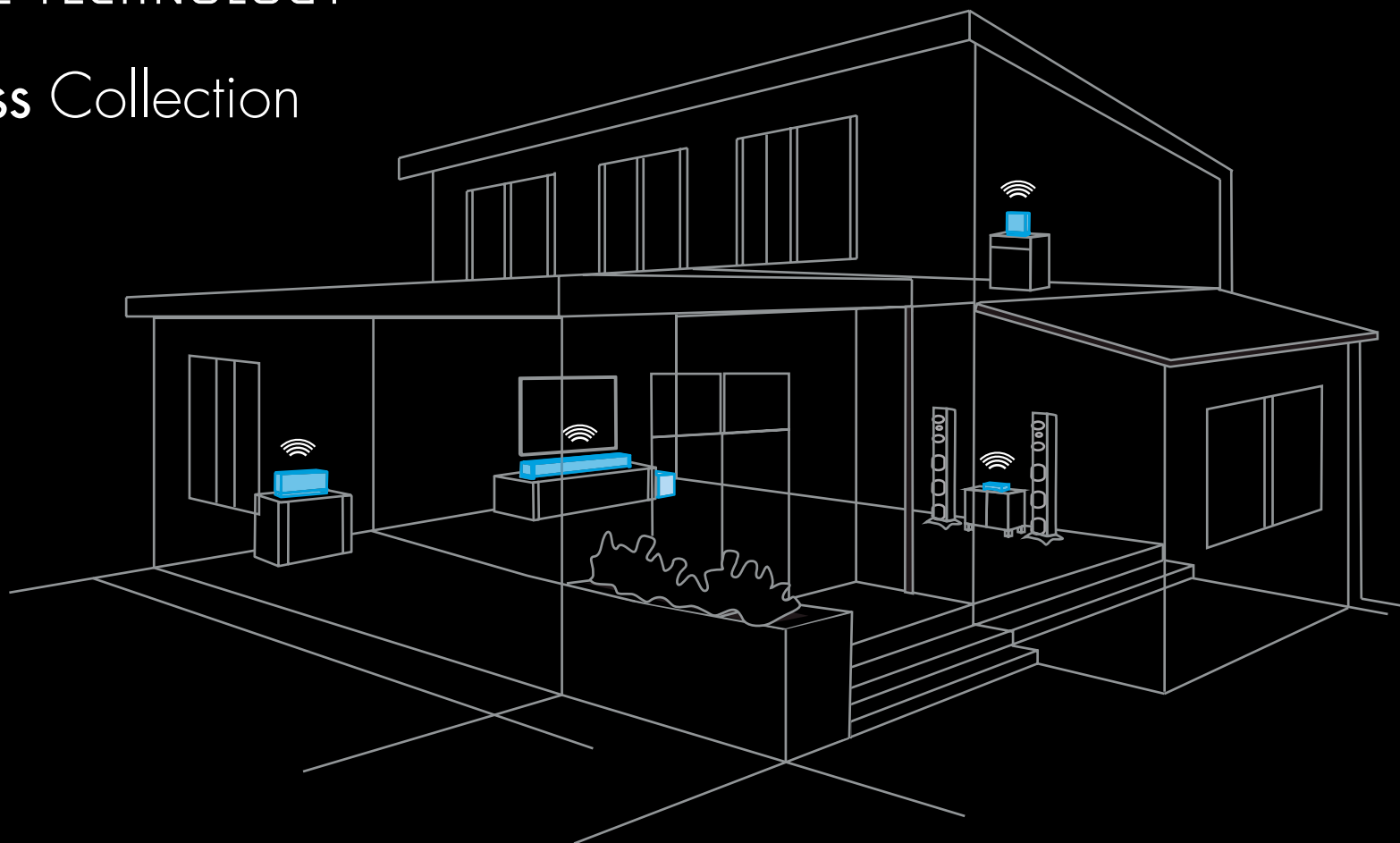
How to Buy an A/V Receiver
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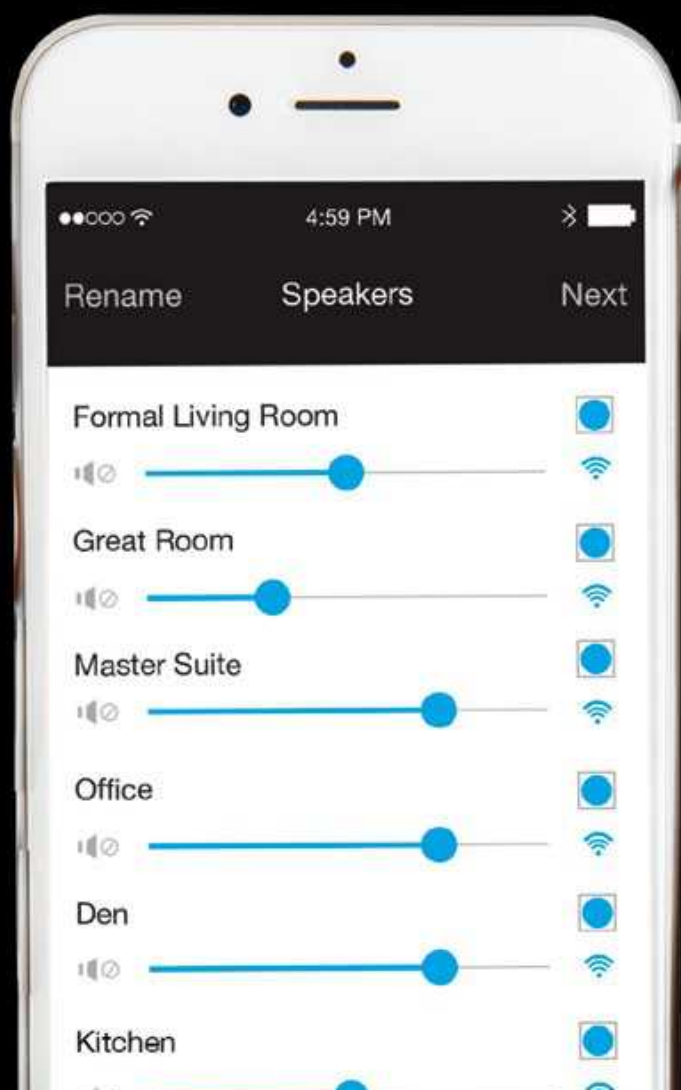
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GoldenEar's 3D Array Soundbar is "Absolutely Unbelievable"

— Darryl Wilkinson, *Home Theater Magazine*



3D Array \$999

FF3 \$499

"Most exciting soundbar demo I heard"

— Brent Butterworth, *Sound&Vision Magazine*

We call the SuperCinema 3D Array, quite simply, "an extra-ordinary high-end loud-speaker system disguised as a soundbar." It is designed to combine the form factor of a sleek, stylish soundbar, with the performance of a true, high quality, component system. The complete ultra-high-performance system would include a powered subwoofer and a receiver or separates; plus the 3D Array achieves superb three-dimensional surround performance with or without rear surround speakers. Its 2.7" thin cabinet is constructed of aircraft-grade aluminum and contains six of GoldenEar's signature cast spider leg basket bass/midrange drivers and three High-Velocity Folded Ribbon Tweeters along with our breakthrough 3D Technology that cancels interaural crosstalk distortion for total sonic immersion.



High-Velocity Folded Ribbon Tweeter (HVFR™)



High-Definition Cast-Basket Bass/Midrange Driver

"Awesome just got redefined"

— Darryl Wilkinson, *Home Theater Magazine*

The 3D Array sounds amazing and the experts certainly agree. Al Griffin of *Sound & Vision* wrote that the 3D Array System, "...delivered at least 90% of my main rig's [Triton Two Towers] performance." Chris Martens of *The Absolute Sound* raved, "...a soundbar system so good that audiophiles might buy it for music playback alone...if asked to recommend a soundbar to please finicky, hypercritical audiophiles, this would be my hands down choice." And *Home Theater*'s Darryl Wilkinson summed it up perfectly when he raved that, "the width and openness of the soundstage was absolutely incredible" calling it "an instant classic" that is "a must-listen-to, top-of-the shopping list, soundbar-to-beat...when it comes to soundbars awesome just got redefined."

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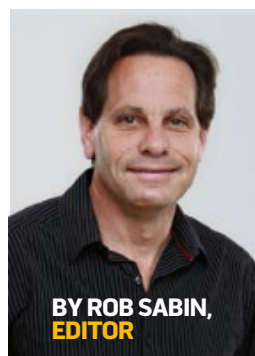
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October 2015

TrackOne

CAN OBJECT-BASED AUDIO SAVE THE AVR?

Dolby Atmos and DTS:X may not be enough.



BY ROB SABIN,
EDITOR

We are finally starting to see the new 2015 model year A/V receivers trickle in, the first generation to more or less universally include HDMI 2.0 connections along with HDCP 2.2 copyright management. You'll find three sampled in this issue, all at the high-value \$600 price point that has always represented a sweet spot for the enthusiast on a budget. Some of last year's models, still floating around for sale, included HDMI 2.0 but lacked the newer HDCP scheme that would allow them to pass copyrighted 4K content delivered by stream or UHD Blu-ray going forward. Shame on some brands for touting these as though they were future-proofed when they really weren't. This year, thankfully, everyone is getting caught up.

Also appearing on many more models this year is surround-sound decoding for either Dolby Atmos or Atmos plus DTS:X. For those readers picking up *Sound & Vision* for the first time (or sleeping under a rock), these are "object-based" audio systems. They use overhead speakers (or, with Atmos, the option for ear-level speakers that reflect sound off the ceiling) and allow movie and music sound mixers to take any audio element—a voice, an instrument, a sound effect—and place it anywhere in a dome-shaped soundfield above the listener's ears. The approach differs from conventional channel-based surround sound in that, along with having overhead speakers to work with, each audio object is defined by digital metadata that describes its location in space and its volume at any given moment. The smart surround decoders used in movie theaters, and now the home environment, can use the data to map the sound to however many speakers you care to use (or that can be supported by your playback gear) for optimum performance.

DTS:X remains vaporware as of late July; there's a single Blu-ray movie title that's been released and a few AVR models that have announced decoding capabilities through an eventual firmware update. But we're well into our exploration of Dolby Atmos (despite less than a dozen Blu-rays released to date), and in its 5.1.4 configuration (with four overhead channels), it's clearly something to write home about. Early on, I called Atmos the most significant upgrade in home theater since the launch of Blu-ray and the 7.1-channel lossless surround formats (Dolby TrueHD and DTS-HD Master Audio). Sound mixers are still learning how to best use the format's capabilities (here's a hint, mixers: It's about subtlety, not bombast). But with the right material, the effects are incredibly natural and convincing. I'll even say thrilling.

So far, you can't get that with a soundbar or a wireless powered speaker. You need an AVR or surround processor and amp combo that possesses the sophisticated processing and dynamic power to get the most from the content. Plus those extra overhead speakers. But AVR sales have been waning for a while now as the broader public moves toward all-in-one solutions that are easier to set up and use. Of course, we welcome any purchase of any ancillary sound system for any TV—but it puts pressure on a product category that is increasingly becoming the bastion of a relatively small group of enthusiast consumers and custom installers, the latter of whom are particularly well equipped to monetize the installation of a fancy high-end receiver and additional built-in ceiling speakers (along with a custom universal control system). I just hope the overall sales volume driven by object-based audio is eventually enough to keep the AVR, the hardest-working and most versatile tool in the home theater gearbox, a vital category for years to come.

JS

**So far, you can't
get Atmos in a
soundbar.**

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GoldenEar's New "World Beating Triton Five"

– Mark Fleischmann, *Sound & Vision*

"Striking ... For anyone considering a loudspeaker under \$10,000, the (\$2000 pr.) Triton Five isn't just an option. It is a must audition" – Jacob Heilbrunn, *The Absolute Sound*



Triton Five Tower
\$999 ea.



"... delivering the kind of musical bliss some pay upwards of \$10,000 for" – Caleb Denison, *Digital Trends*

In keeping with GoldenEar's tradition, the Five's auspicious debut at the 2015 CES Show had a jaw dropping effect on the world's audio press. Sound&Vision's Rob Sabin wrote that the Fives were, "spectacularly open and transparent with wide deep sound staging" and "nearly brought me to tears thanks to the tremendous detail the Fives rendered on a Buddy Holly recording". Stereophile's Herb Reichert wrote, "These loudspeakers disappeared better than any I have ever heard" and then added, "While the music was playing I swear I could see nymphs and goddesses dancing around the soundstage". Normally outspoken writers like Sound&Vision's Darryl Wilkinson said, "I am running out of superlatives", and HD Living's Dennis Burger raved, "Quite frankly stupefying ... bowled away doesn't scratch the surface".

"The value for the money here is clear off the charts"
– Chris Martens, *HiFi+*

GoldenEar's goal is to deliver to you absolutely the best sound possible for the money. Superbly lifelike three-dimensional imaging, ultra high resolution, tremendous dynamic range, extraordinary deep bass response, silky smooth high frequency extension along with you-are-there clarity and presence are all a result of GoldenEar's most advanced components and technologies. Best of all, the Fives will deliver exceptional performance with moderately priced receivers, while also allowing you to appreciate the subtle qualities of the world's finest audio components. And, just as importantly, they deliver state-of-the-art sound quality with two channel music as well as multi-channel home theater, including Dolby's new Atmos technology, when paired with our perfectly matched center channel, surrounds, height speakers and subs.

"Best Sound for the Money at CES 2015"
– Robert Harley and Neil Gader, *The Absolute Sound*

The Triton Five is already adding illustrious new awards to GoldenEar's impressive collection. Although many focus on value for the money, some writers, like Sound Advice's Don Lindich, go further, giving them "Best Sound at the CES Show" and writing, "this is a cost-no-object preference for me". HD Guru's Gary Merson gave them "Top Pick Speaker at CES" and wrote, "They blew us away ... breaks new ground, outperforming competitors costing thousands more". SoundStage's Doug Schneider awarded a "Best System" honor. You owe it to yourself to visit your nearest GoldenEar dealer today!

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GoldenEar's ForceField Subs: "Near perfect... a tour de force"

— Andrew Robinson, *HomeTheaterReview.com*



FF3 \$499

FF5 \$999

FF4 \$699

"Thunderous...Room-Shaking"

— Al Griffin, *Sound&Vision Magazine*

GoldenEar's ForceField subwoofers are true over-the-top super subs that are especially remarkable for their compact size and unusually affordable prices. All three incorporate the same advanced technology and components including: DSP controlled high-power digital amplifiers (1000, 1200 or 1500 watts), ultra-fast long-throw high-gauss magnet structure drivers (8", 10" or 12") and pressure-coupled downward-firing quadratic planar infrasonic radiators. In addition, their uniquely shaped cabinets are not just attractive, but are also purposefully configured for dramatic performance benefits.

"Extraordinary bass prowess... I've never heard a sub this small go that deep"

— Steve Guttenberg, *The Audiophile*

With their high output capability, stunning impact, superbly musical bass articulation and breathtaking infrasonic low frequency capabilities, the ForceFields have received the highest praise from critics, experts and knowledgeable listeners around the world. Geoff Morrison of Residential Systems raved, "their thunder filled the room." AV Forums praised the, "monstrous output for such a small sub." Mark Fleischman of *Home Theater* wrote, "I was dumfounded" over their, "low frequency barrages with floor-shaking confidence." And to top it off, the British writer Stephen May raved, "this astonishing box can pressure-load a room like an angry Silverback" and Andrew Robinson warns, "Your walls, floorboards, and ceiling may just crap out on you." And, as Dennis Burger of *Tech Tell* observed, they are also, "shockingly musical!"

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SOUND & VISION

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GoldenEar has Engineered Our New Triton One to Perform Like a \$20,000+ Super Speaker!

"Revelatory ... cosmically orgasmic ... astounding performance-vs-price ... these speakers absolutely embalm the competition" – Darryl Wilkinson, *Sound & Vision*

"Triton One shames some speakers costing ten times as much ... it is an absolute marvel"

– Caleb Denison, *Digital Trends*

"Best High-End Value at CES 2014 ... Sandy has created a speaker that defies its price point"

– John Sciacca, *Residential Systems*

"Best of CES 2014 ... stunning realism ... the sound was truly grand and majestic"

– Roger Kanno, *SoundStage*

"Best Sound for the Money at CES 2014"

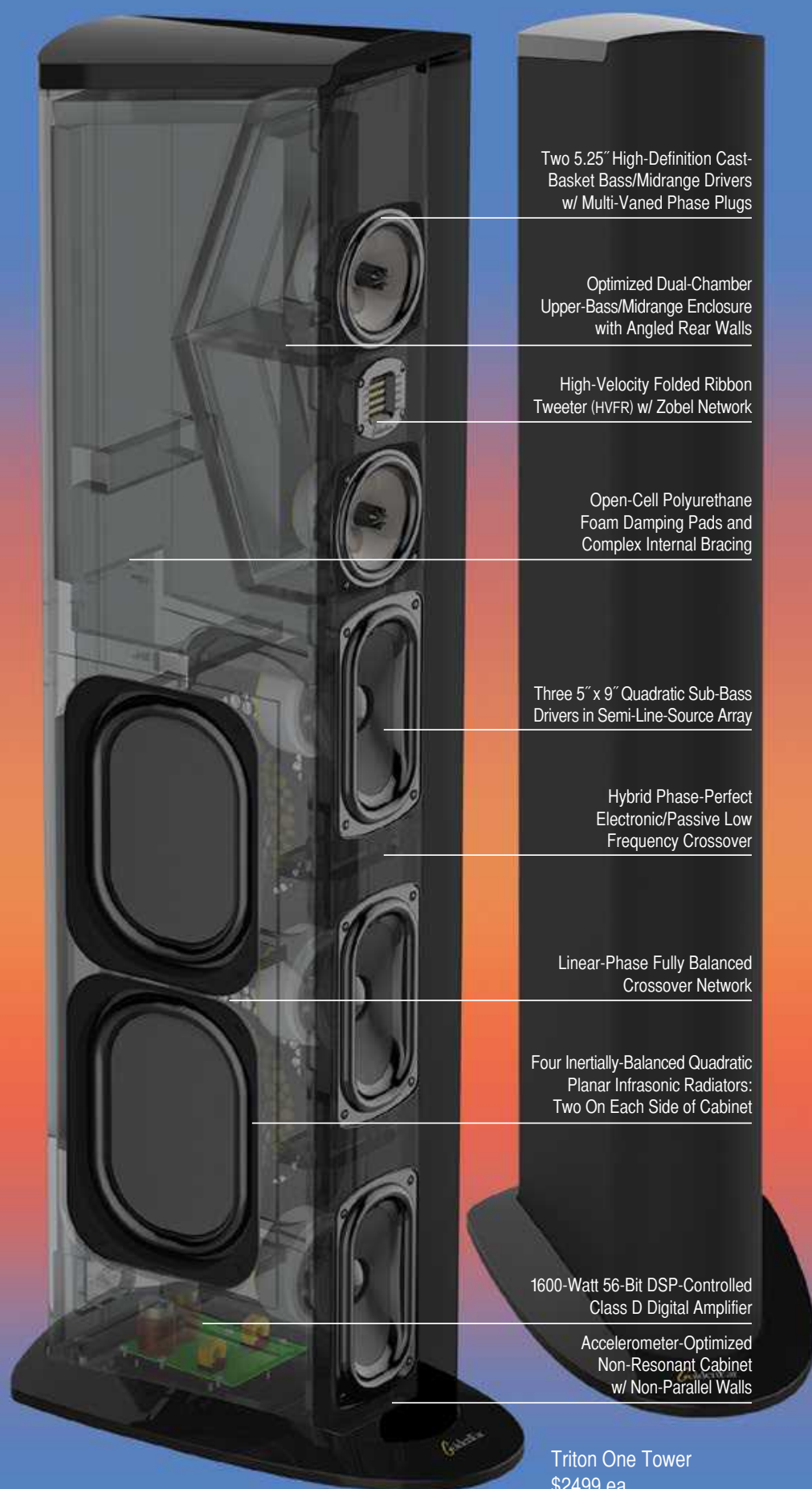
– Jonathan Valin, Kirk Midskog and Neil Gader, *The Absolute Sound*

Introducing Triton One, an evolutionary speaker that builds upon advanced technologies that have made Tritons mega-hits around the world. Sterophile called them, "A Giant Killer Speaker" and Robert Deutsch further added, "it's not unreasonable to compare the sound of the \$4998 Triton One with speakers costing tens of thousands of dollars more". This new top-of-the-line flagship was engineered to deliver even better dynamics and bass than the extraordinary Triton Two, along with further refinement of all aspects of sonic performance. How well have we succeeded? In the words of HD Living's Dennis Burger, the Triton One delivers, "... the sort of upper-echelon performance that normally only comes from speakers whose price tags rival a good luxury automobile".

Triton One "creates visceral, tangible waves of pure audio bliss"

– Dennis Burger, *HD Living*

Great sound is what it is all about and the Triton Ones deliver, as The Absolute Sound's Anthony Cordesman wrote "they provide sustained musical pleasure and exceptional realism ... extraordinary sound quality and value ... one of the best buys in speakers ... highly recommended". The Ones were specifically engineered to excel with all types of music as well as movies. Best of all, they offer previously unheard of value, as Brent Butterworth wrote in Sound & Vision, "I heard a few people saying the Triton One sounded like some \$20,000-and-up high-end towers, but I disagree: I think they sounded better than most of them". Hi Fi+'s Chris Martens raved the Ones are, "jaw-droppingly good ... one of the greatest high-end bargains of all time with a dazzling array of sonic characteristics". And Darryl Wilkinson summed them up best, "A Masterpiece ... GoldenEar has fully ushered in the Golden Age of the Loudspeaker". Hear them for yourself and discover what all the excitement is about.



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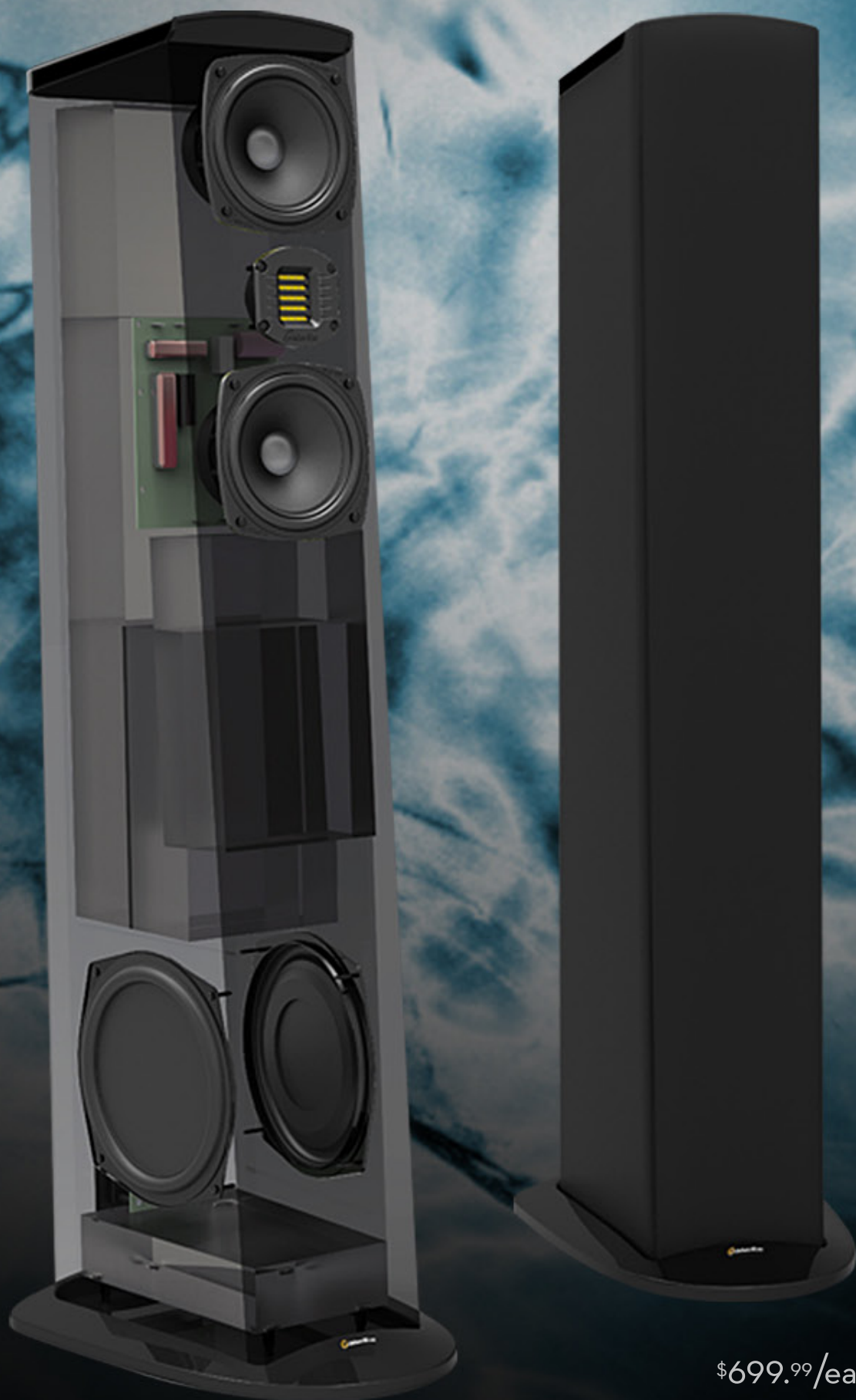
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– Chris Martens, HiFi+

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Letters

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questions and
comments

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Vinyl Shmynyl

Please pass my applause to Thomas Kirk for his letter in the July/August 2015 issue ("Vinyl's Comeback: Feast or Famine?"). I echo everything he said, and still keep a Discwasher around, but only for nostalgia's sake.

Kirk's list of faults with vinyl left out the elephant in the room, though, and that's technical specs. Remember signal-to-noise ratio? It alone should sink vinyl among serious lovers of music. And frequency range, though as we get older that becomes less important.

Remember wow-and-flutter? Crosstalk? Frequency response? Rumble?

Which is not to say that CDs don't have technical problems of their own. But nothing to compare with analog.

By the way, when I was younger, I received some education in electronics and have an AA degree in it. I love tubes. Their operation is easy to understand, and they're easy to troubleshoot. But would I have tubes in my electronic equipment? Because they produce "warm" sound? Hilarious.

Steve Kohn

San Antonio, TX

But Will There Be a TV to Watch Them On?

Whoa!!! What is happening in the world of stereoscopic movies? It seems the money changers have found a new pot of gold after the success of *Gravity* and, more currently, the run of *Jurassic World*. There are so many new 3D features in the theaters it is not possible for me to keep up moneywise—too expensive for a fixed income person. It will be the penultimate collusion of 4K and 3D. Honey for the eyes! My collection is near the 100 mark. Keep 'em coming.

Ben Bostelman

Via e-mail

Hi, Team Informative! I m-a-y have missed something in the flow of ones and zeroes, but it seems to me that j-u-s-t as the game is finally ready for 3D, what with the "extra" resolution of 4K and such, *why* is 3D's plug being pulled for the most part? To wit: DirecTV's 3D lineup truncation, and the worst to come being *no* backward compatibility for 3D in the forthcoming 4K Blu-ray players! Who decided this, Cyclops?

Myke Muller

Via e-mail

The point is well taken that the arrival of Ultra HDTVs has, for the most part, elevated our home 3D experience beyond anything we've seen prior, largely due not so much to the extra pixels but to higher brightness than we've had to date. So it is indeed ironic that the home 3D market



A New Way of Looking at Sound

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without hearing
all about it.

LETTERS

seems to be waning just as the technology has started to produce an engaging experience and Hollywood is hitting its stride with 3D releases. The problem, as we've stated before, is that not enough everyday Joes and Josephines are willing to wear the glasses or have experienced enough of a buzz off all the poor executions to date to keep doing so. Still, it's not like we've seen 3D disappear: Excepting Vizio, which chose to take the money it was spending on 3D in its budget TVs and put it into full-array local-dimming backlight technology, we've not yet seen manufacturers deserting 3D in any significant way (other than no longer supplying the glasses with the sets). On a clarifying note, while the Ultra HD Blu-ray specification does not include a spec for an Ultra HD 3D disc or UHD 3D playback, support for today's 1080p 3D discs is optional for manufacturers. So it would be wrong to say that Ultra HD Blu-ray is not backward compatible with 3D, though some players may not be 3D players, just like today. —RS

Why Stop at the Smartphone?

Ken Pohlmann's article, "The Last and Greatest Frontier" (Signals, July/August) is very interesting, and I wish the industry well in improving smartphone sound. I sometimes cover my ears when I hear one of these inferno things blare off. Another part of consumer electronics that really needs improvement is "boombox" portables. Sadly, this is all the music "system" most households have, and even businesses are using them for background music in lobbies and offices, instead of installed ceiling speakers. Unfortunately, almost every one I have heard sounds as bad as garden-variety 1950s and 1960s table radios—muddy with a hollow drummy resonance, and distortion and even rattling if the volume is turned up above that of normal conversation. Could someone please come out with a boombox-competitive product, size- and cost-wise, that has a smooth frequency response from 80 hertz to 12 kHz and can play at 75 decibels or even 80 dB sound pressure level into a typical living or family room without turning the sound to mush or rattles? Even monophonic models would be welcome, putting the limited size and cost into one better channel of sound instead of two not-so-good ones. Can anyone even notice the stereo separation from several feet away if the speakers are only a foot or less apart? In today's consumer electronics, I see a wide gap in price, complexity, and sound quality between department store junk and anything I can consider faithful sounding. More needs to be done to fill this gap.

Michael Kiley
Crestwood, IL

Actually, if you adhere to the notion that today's self-powered wireless speakers are the modern replacement for the boombox of yesteryear, we have indeed seen some very respectable-sounding entries at reasonable prices—though it's hard to find a truly great-sounding product in

the under-\$100 price range we might associate with the old-time boombox. The Riva Turbo X (\$350) portable reviewed in our July/August issue (and at soundandvision.com), is a good example of the new audiophile-quality crop. And we've reviewed other impressive wireless speakers, including the Acemile Theatre Box (\$299, September), the Infinity One portable (\$300), and the JBL L8 (\$600) and L16 (\$1,000); all can found under Wireless Speaker Reviews at soundandvision.com. You can also watch for our upcoming review of the Mu-so, a refined and elegant \$1,499 all-in-one tabletop system from high-end manufacturer Naim Audio. —RS

ZZZZZAP! Revisited

Regarding your June issue letter inquiring about lightning strikes ("ZZZZZAP!"), I have had two at my house. The first time I lost two Krell KSA 100 amps and my Audio Research SP-15 Preamp. I had three Shunyata surge suppressors on my equipment. So with the guarantee they have to protect my equipment, I sent it back to Shunyata for the insurance guarantee. They told me there was nothing wrong with my surge suppressors.

Two years later, I had another lightning strike. This time it blew out my home theater system: a Classé SSP 800 surround processor, my JVC projector, two Blu-ray players, my home alarm system, and a water sprinkler controller. This all happened even though I had a whole-house surge suppressor connected to the incoming electric meter this time and had actually unplugged my amps, projector, and the Classé.

I found out why from my alarm installer. First of all, all the suppressors in the world only work on electric company power surges—not on any lightning strikes. What happens is the lightning travels up the house ground, which is a heavy-gauge copper wire or bar buried in the ground. Since all outlets are grounded to that copper wire, the lightning travels along the ground. Unfortunately, in New Jersey it is a state law that your incoming electric line must be grounded to an 18-inch buried rod.

However, the second time it happened, I had unplugged everything and still lost most of my electronics. The reason? It was the cable going into the cable box. Since it is grounded, the lightning traveled along the cable into the cable box, which blew up. Everything connected to the cable box was damaged to the tune of \$10,000. The cable box was connected to the Classé, which in turn was connected to my amps, projector, etc. Luckily, it was all covered by insurance.

The solution I now use is to check the weather reports daily, and if there is a storm coming I unplug all my equipment and disconnect the incoming cable from the cable box. It's a pain each time to do this, but believe me, it is worth it.

A. Solomon
Denville, NJ

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American Awesomeness

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Edited by Claire Crowley

Man on a Mission

15 Minutes with Speaker Designer Andrew Jones

Andrew Jones has an impressive history in loudspeakers, having served as the chief speaker engineer at KEF, Infinity, Technical Audio Devices Laboratories (TAD), and Pioneer, where he established a reputation for designing budget speakers that sound shockingly good. In May, following the merger of Pioneer and Onkyo, Germany's ELAC announced that Jones had not only joined the company as vice president of engineering but was already working on a new line of speakers.

S&V: You were at Pioneer for more than 17 years. That's a long time. Tell us about the transition to ELAC.

AJ: Yes, it is a long time. Pioneer was a great experience. I joined because of what I knew about Pioneer research capabilities through the years, with the view of being able to access materials and technologies that would be unavailable to most high-end speaker companies. This bore fruit with what I was able to do with TAD. However, life changes, and so does Pioneer. With its recent restructuring, I began to entertain thoughts of potentially a different future. When ELAC approached me with the idea of expansion and heading up a new design facility, it was an offer I couldn't refuse.

S&V: Can you provide a little background on ELAC and tell us how you fit in?

AJ: ELAC celebrates its 90th birthday next year and introduced its first hi-fi product in 1948, a turntable. It became a leader in turntable manufacturing by 1957 and holds the patent for the first stereo moving-magnet cartridge. In more recent times, with loudspeakers that feature the JET tweeter (a Heil-type ribbon driver), ELAC has become

recognized as a major player in high-end audio. It's this heritage that persuaded me to join forces with them.

Although well known in the U.S. in the past for the Miracord turntables, in recent years the company has not been very visible here. However, in Europe, ELAC is very well regarded. The idea behind setting up a new design facility is to expand the product range both upwards and downwards; to refine existing technologies and develop new ones; to introduce new product categories; and to re-invigorate the U.S. market.

S&V: What are your goals for the aptly named Debut speaker series?

AJ: The Debut line is the beginning of a whole range of product. We are going to be very busy! The concept was to start with entry-level price points and try to bring extraordinary value to a category that is the entry point for (hopefully) new enthusiasts. When all of us old fogies in the industry gather together, we continually moan about the lack of young blood, yet we don't seem to be doing much to fix that. The Debut series is intended to address the price/performance issue and to excite listeners to become interested in hi-fi as a worthwhile hobby. I also paid attention to the industrial design, as it is a fact of life that if you are to attract new

listeners, you won't do that with hair shirt looks!

S&V: With prices ranging from \$230 to \$560 a pair, the lineup is reminiscent of the work you did at Pioneer. What makes these speakers special?

AJ: The line is only reminiscent of the Pioneer speakers in its objectives. In its detail design, there is no commonality. This was a ground-up development effort. To this end, I took care to look at every detail of the design that costs money, and then decide what value that detail brings to the sound quality. By saving on some factors I could afford others, such as woven Aramid cones not normally found at these price points. The key is attention to detail and setting a high goal for the expected performance level. My years spent in the ultra high end with TAD has a large part to play in this. I constantly refer to an internalized standard of what I want to hear from a speaker. I realize that TAD levels of performance are not possible at these price points, but an essence of it is...

S&V: Tell me about the subwoofer lineup.

AJ: There are three models. An entry-level subwoofer designed for value, but otherwise of traditional design. The two other



Andrew Jones

models step up in performance, to a long-throw 10- or 12-inch driver plus passive radiators. But in addition they add a unique feature for calibrating the subwoofer to the room. They connect via low-energy Bluetooth to a smartphone or tablet. Via an app, you can control subwoofer level, phase, and crossover frequency. In addition, we have the ability to measure the response of the speaker in the room and apply correction for the room. We do this using the microphone built into the phone/tablet.

S&V: What's next?

AJ: We have all sorts of products in the pipeline, as well as thoughts for future products. I also intend to re-enter the high-end market. I think you will be very surprised at what we will be launching in the near future.—Bob Ankosko

Visit elac.us for more information. An extended version of this interview appears on soundandvision.com.



This Just In...

By Mark Fleischmann

The LG Smart Security

hub was developed with ADT. It includes a 1080p night-vision camera, motion detection, sensors for light, temperature, humidity, and air pressure, and compatibility with Z-Wave and ZigBee home automation standards...



Emotiva Audio

is expanding beyond its direct-to-consumer online retailing into traditional A/V specialty retailers and integrators. The benefit to consumers is that you could listen before you buy...

Video Streaming Will Be 85

percent of U.S. Internet traffic and 80 percent outside the U.S. within five years, Cisco projects. Daily viewing on mobile devices has gone from less than an hour a day five years ago to three hours daily now...

Mobile Video Will Surge

eight times over by 2019 but is unlikely to choke cellular networks, says Juniper Research. Fifty-nine percent of it is likely to travel via Wi-Fi...

M-Go Ultra HD Streaming

with performance-enhancing HDR will make its debut by year-end on Samsung TVs. The non-subscription PPV

site from Technicolor and DreamWorks will charge \$4 to \$6 for a two-day viewing

window or \$12 to \$20 for purchase...

Video Streaming Account Sharing

is becoming common, according to Parks Associates. Of the 60 percent of homes with an account, 8 percent use accounts held outside the home—or 22 percent of those 18 to 24...

Hate the Netflix Carousels?

The Website's new user interface is replacing them with something more app-like. You won't have to use the back button as much...

A Free Streaming News

service called NewsOn will make its debut this fall. TV station owners ABC, Cox, Hearst, Media General, and Raycom will offer local newscasts from 112 stations in 84 markets on mobile and selected connected-TV devices...

Apple's Pay-TV Service

is delaying launch because local broadcasters aren't

signing up. The service would offer their live feeds nationwide for \$30 to \$40 per month...

Apple's TV-Making Plan

was spiked because designers couldn't come up with compelling enough features, reports *The Wall Street Journal*. We suspect the TV business's cutthroat pricing and slim margins were also factors...

The Lenovo Cast

plugs into an HDMI jack to deliver 1080p video, audio, games, and pictures from DLNA- or Miracast-compatible phones and tablets. Priced competitively at \$49...

Comcast's X1 Platform

now includes a Restart Notification. Press the Info button to learn more about a program in progress, then hit Restart to see it from the beginning...

HBO Go and Showtime

didn't work on Amazon Fire TV and the Fire TV Stick for Comcast subscribers—until now. PlayStation 3 and 4 users are still out in the cold...

Comcast and Next-door,

a social networking platform, are teaming up to offer "concierge" service to answer questions about the

cable system's products, outages, offers, and events. It will not offer tech support...

Digital TV

will penetrate 97.6 percent of world TV households by 2020, up from 67.2 in 2014, forecasts Digital TV Research. The number of all-digital countries will rise from 17 to 93, and 124 will be more than 90 percent digital...

Channel Sharing

may allow some broadcasters to survive after they relinquish spectrum in the FCC's upcoming auction. They'll be allowed to strike sharing deals before or after the auction...

Windows 10 Is Getting Dolby

Audio and Dolby Digital Plus compatibility. The former enhances audio from small speakers, and the latter is a refined (better than Dolby Digital) lossy surround codec...

DTS Headphone:X

is being built into 40 Samsung TV models, having already reached Blu-ray players and game consoles. It plays 5.1 content in 5.1 over Bluetooth headphones and is also said to improve stereo...

TV Maker Element Electronics

is branching out into soundbars with the Element

2.0 (\$59). An Element 2.1, with wireless subwoofer, will follow...

Ring's Wi-Fi Video Doorbell

(\$199) tells your smartphone when someone is ringing the "bell," displaying a video image of the caller. It mates with the Ring Chime (\$20), which plugs into any power outlet...

LG's Magnetically Attachable OLED

display is a mere 55-inch prototype. But its 27-inch LG 27MU67 UHD gaming monitor is here and now, with a four-screen split mode, in-plane switching, AMD FreeSync to stop tearing and stuttering, and HDCP 2.2 DRM...

The First DTS:X Blu-ray

release is *Ex Machina* from Lionsgate. Existing Blu-ray players pass the bitstream to DTS:X receivers and surround processors...

Sling Latino

offers the Paquete Total package, with 22 live channels, for \$12/month. Paquete Esencial offers 16 channels for \$7/month...



Hands on

VSN Mobil V.360° Camera

By Darren Ankosko

The Whole Picture

PRICE \$449

LAUNCHED IN 2013, VSN MOBIL is a new face in the tech crowd, and the company just set the bar in the immersive video market with an action camera that shoots unstitched 360-degree video—the V.360°. Comprised of hand-plucked talent from Foxconn, General Dynamics, Motorola, Pininfarina, and Samsung, VSN Mobil has a leg up on the competition out of the gate. With a creative director from the design

AT A GLANCE

+ Plus

- **Easy to use**
- **Unstitched 360-degree photo and video**
- **Compatible with standard tripod and GoPro mounts**

— Minus

- **No controls on the camera**
- **Slightly soft video quality**

house that brought us the timelessly elegant Ferrari F40 and a head of engineering who previously served one of the world's largest defense contractors, you would be correct to assume that the V.360° is equal parts beauty and brain.

Design

The stylish little pepper mill towers over the latest GoPro lineup at a height of 4 inches and weighs in at a bottom-heavy 8.1 ounces. An anodized aluminum base protects a 2610 mAH lithium-ion battery, Micro SD card, Micro USB 3.0, Micro HDMI ports, and a variety of sensors (GPS, Compass, Temperature, Accelerometer, and Gyroscope). Four pinholes in the aluminum housing reveal the LED indicator, stereo microphones, and barometer; the camera sits atop a mirrored,

parabolic cone inside a plastic chamber filled with Argon gas. Here's the key to an unstitched image: the F/3.0 aperture points directly upward into a concave mirror that bounces the field of view back down off the camera's perch and out all sides of the chamber. The result is a seamless, 360 x 60-degree image presented in 6480 x 1080 HD at 30 fps.

Function

The V.360° has no buttons and must be controlled exclusively with the provided waterproof remote or a Bluetooth/Wi-Fi connected device via the VSN Mobil app (available for Android and iOS). You guessed it—fumbling for the remote or your phone while cruising on your motorcycle, surfing, or even walking the dog does get old fast. However, the intuitive app allows you to set up a live video feed, review your work on the fly, execute basic edits, and easily upload videos and panoramic 8MP photos directly to YouTube and Facebook.

In addition to the app, VSN Mobil offers free desktop software for reviewing footage. It's worth noting that I could not get the software to function on my four-year-old, quad-core Acer laptop for unknown reasons but that it worked flawlessly on my newer Aspire V5. While the desktop software isn't good for anything other than playback, you can use nearly any third-party software to edit your .mp4 footage. Keep in mind that videos opened outside of the VSN software will appear split with two 180 x

RATING

VSN Mobil V.360° Camera

Performance ★★★★★

Features ★★★★★

Build Quality ★★★★★

Value ★★★★★

60-degree images stacked one on top of the other. This split occurs at the LED indicator. You'll need a microSD card to store your footage.



Testing

Entry-level waterproofing that's airtight to 3 feet for 30 minutes coupled with military-spec shock, dust, and vibration resilience make for an extremely capable unit out of the box. You can't take the V.360° diving alongside your GoPro without the \$60 Dive Bell, but *the grenade*, as the early-morning surf crew dubbed it, did just fine glued to the nose of my favorite surfboard with the provided mount. The camera excels in bright environments and picked up some unique shots of me simultaneously paddling and dropping in.

Intrigued by the option to activate the recording of a secondary telemetry file and edit V.360° video with RaceRender (or similar third-party software) to display revs, speed, gear selection, and even Gs right on your video, I decided to tear up the streets a bit in my Corvette. Lower-profile GoPro cameras are solid past 150 mph on an exposed suction cup mount, but the larger V.360° started dancing at speeds as low as 40mph while suctioned to the corner of my windshield, and wind noise distorted everything beyond 20 mph. I will opt for a more protected position when I head for the track on race day.

The Bottom Line

The V.360° is just as comfortable in





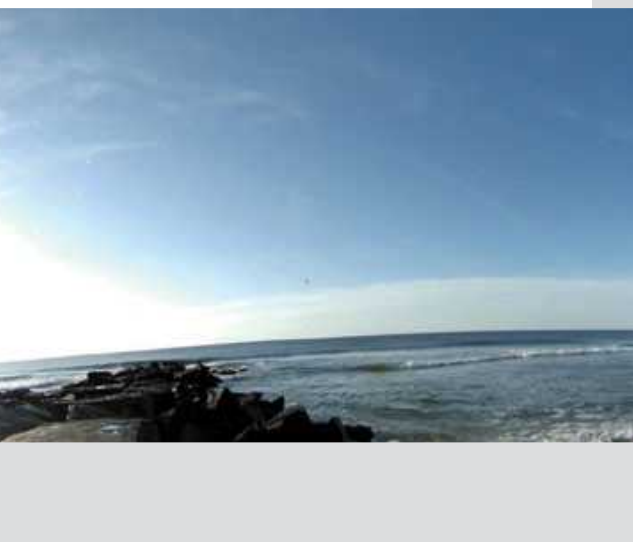
the surf as it is at your best friend's wedding, and a quick edit with the mobile app will usually let you dial in the perfect shot. This unique little camera is the all-seeing eye that gracefully replaces bulky, multi-camera rigs at a fraction of the cost, but not without fault. Video quality lacks the crisp wow factor of modern GoPro footage, and you still miss everything above the vertical 60-degree field of view. Nonetheless, the V.360° is an impressive

camera that allows you to capture your environment in a new, more complete way. The ability to pan around inside an unstitched virtual reality is the stuff of the future, and it is here to stay.



SPECS

Camera Type: IP67-rated waterproof action camera • **Resolution:** Adjustable up to 6480x1080 at 30 fps • **Still Image Quality:** Up to 8 mp • **Weight (Ounces):** 8.11 • **Processor:** Qualcomm Snapdragon 800 processor 2.3 GHz Quad-core • **Imager:** 4K/16 Megapixel Imager, Image Sensor Size 1/ 2.3 • **Field of View:** 360 x 60 degrees • **Battery Life:** Up to 2 hours continuous recording • **Connectivity:** Micro USB 3.0 with Super Speed support, HDMI v1.4a



PERFECT FOCUS

The Connected Life

JOHN SCIACCA

Big Picture: The Infrastructure for Your TV Install



As a custom installer, meeting with clients building new homes, remodeling, or just looking to upgrade their entertainment systems is a big part of my job. And after 17 years of walking through job sites and looking at blueprints, I pretty quickly hone in on the few key areas that determine the project's difficulty and cost.

While decisions like speakers, electronics, and TVs are important, it's the "big picture," infrastructure items that need to be focused on early. Ultimately, with the correct infrastructure in place, virtually any gear can be installed and—hopefully—leave the project prepared for upgrades and technology changes down the road.

When it comes to installing a new TV, there are four big-picture items beyond just making sure the mount is securely affixed to the studs. These are power, sources, audio, and control.

Power

Obviously, the TV won't work without power, and if you can't just point to the wall and say, "Have the electrician put an outlet right here," it needs to be addressed. By the National Electrical Code (NEC), you can't just run an electrical or extension cord through the wall, but there are several solutions like Power-Bridge that allow easy—and safe—power connections without bringing in an electrician. Of course, if no outlet is nearby or you are working with something solid like a brick fireplace, concealing the wire for a finished look will be trickier.

Sources

Knowing what sources will connect to the TV determines the type and number of cables that need to be run. Even with just basic cable TV, is there a jack already there? Or can one be intercepted in an attic, crawlspace, or other room? While some source components like Apple TV, DISH Joey, and DirecTV Genie Mini are slim enough to install on the wall behind a flat-panel TV—greatly simplifying installation—most components require some kind of cabinetry or shelf. The location of the sources determines the cabling length and the installation's difficulty. We recommend pulling a bundle of HDMI, Cat-rated data and RG6 coax cabling for flexibility, especially if you won't be using an A/V receiver as a source switcher. We have started pulling multiple extra Cat cables to displays, as the wire is cheap and offers so many great uses, from Ethernet, to IR, to HDMI distribution via HDBaseT. Of



course, installing some conduit or a pull-line can ease adding more wiring down the road.

Audio

With very few exceptions, modern TVs deliver abysmal audio quality; fortunately, there are many ways to improve it. From an installation standpoint, adding a soundbar is often just a single digital audio cable from TV to bar. However, depending where the bar is mounted, this might mean concealing another cable—and power—inside the wall. With a traditional surround system, enjoying improved sound from any streamed programming like Netflix or Amazon Prime requires sending the TV's audio to the AVR. Again, this can be accomplished via a digital audio cable. However, TVs and receivers have been supporting an HDMI function called ARC—Audio Return Channel—for several years, enabling the TV to send audio back to the receiver down the same HDMI cable it uses to receive video.

For TV installs, there are four key infrastructure items beyond the mount.

Control

As the install grows from TV only, to TV with a set-top box, to multiple sources, to adding an audio system, the remote pile grows quickly. Beyond just the convenience of a universal controller (probably the best investment you'll make in your system), sources located out of sight will require a control solution that can work through cabinet doors or even walls. While infrared repeating systems are less expensive and can do the job, they are more prone to interference and aren't as reliable as radio frequency solutions that don't require pointing the remote at a target.

Next month, I'll discuss the infrastructure needs of a distributed audio system.



Old Stuff, New Times



I'm planning to replace my 20-year-old receiver but would like to hook it up to older components including a laserdisc player, cassette deck, VCR, and turntable. I like Yamaha and Denon receivers, but I'm confused about the connection options. My newer gear consists of a Samsung HDTV, Oppo Blu-ray player, Roku 3 media streamer, and Verizon Fios HD set-top box.

Dan White / via e-mail

Analog A/V inputs can still be found on new receivers, but their number has dropped substantially over the past few years. There are plenty of HDMI inputs for digital sources like Blu-ray players and Roku boxes, but analog connections can number as low as two on budget (under-\$500) models. If you spend more (\$500 and up), you'll find models with a phono input for connecting your turntable, along with multiple composite and component video inputs for connecting older components like your laserdisc player. They should also provide analog-to-HDMI video conversion so you can output composite and component video signals digitally over HDMI (in some cases scaled up to 4K resolution). As for S-video inputs, those started to disappear from receivers around the same time analog A/V connections became rarified.

My recommendation is to buy at least a mid-level receiver with sufficient analog

turntable or other audio source, I'm not able to see video on the screen. What am I doing wrong?

J. Rivera / via e-mail

I get this question enough that I'm starting to think most baseball fans would prefer Pink Floyd to hearing announcers when watching games. (The sport in question *always* seems to be baseball.) It is possible with many receivers to output video to a TV from one source while playing audio from a different source. Not all receivers, especially older models, provide this capability, however.

Newer models from Yamaha make it easy for you to mix and match video and audio sources when configuring inputs. Once set up, you can, for example, watch HD video from a DirecTV HDR connected to an HDMI input on the receiver while listening to CDs via a player connected to a coaxial digital input. But the RX-A2010 (which came out in 2011) is an older model, and it might provide less flexibility for configuring audio sources that are different from the active video source.

Either way, the reason you're not seeing video when you switch to the receiver's turntable input is that there isn't a video source assigned to it (which might not be possible with your model). One workaround would be to use your turntable as the source input for the receiver's Main zone, and then tap its Zone 2/3 feature to route analog video from the component or composite video output of your satellite or cable box to the TV. The baseball game won't look as high-res as what you'd get with an HDMI connection, but your LPs will sound good!

Is there an add-on processor, either available now or forthcoming, that will add Dolby Atmos decoding capability to an existing preamp/processor or receiver?

D. Lockett / via e-mail

I'm sorry to report that I don't know of any external processors that add Dolby Atmos decoding to a current pre/pro or receiver. That said, a number of manufacturers, including Onkyo, Pioneer, and Yamaha have released firmware updates in the past year for specific receiver models that add Dolby Atmos processing capability. (Check the receiver maker's Website to see if your model qualifies.) If it's any consolation, a new Dolby Atmos-capable receiver can be had for as little as \$600 MSRP.

Is it possible for me to watch a baseball game while listening to music?

A/V inputs to accommodate your handful of legacy sources. Both Yamaha and Denon offer a few such models in the \$500-to-\$600 price range.

My Yamaha RX-A2010 A/V receiver is connected to a Samsung 4K TV, Verizon HD set-top box, and Oppo Blu-ray Disc player. Here's my question: Is it possible for me to watch a baseball game while listening to music? Whenever I play music from a

Did FCC Cop Out on Cable Rates?

The average cable subscriber is staggering under constant rate hikes. But don't expect any help from the Federal Communications Commission. It has just issued a ruling saying cable operators are presumed to face "effective competition." That will make it harder for local governments to petition for regulation of skyrocketing cable rates.

Under the Cable Television Consumer Protection and Competition Act of 1992, cable operators were presumed to have little competition. In those days, they had more than 95 percent market share. Today that's fallen under 50 percent with the arrival of satellite and telco-TV operators. However, there seems to be a gentleman's agreement among cable, satellite, and telco-TV operators that pay-TV should get more expensive all the time (with the possible exception of Verizon—see "Networks Knock 'Skinny' Verizon," page 24).

The FCC voted 5 to 0 to reverse the presumption that small cable operators have little competition. The vote to extend that to larger cable operators was closer, at 3 to 2, with the two Republican commissioners joining Democratic chair Tom Wheeler, and the other two Dems dissenting. The vote ratified existing practice, in which the FCC admits it already "grants nearly all requests for a finding of effective competition."

Sentiment in Congress mostly supported the FCC action. Sen. John Thune (R-SD) said the FCC "has recognized the competitive reality," noting that the \$23.01 paid in "noncompetitive communities" is close to the \$22.51 paid in others deemed competitive. However, the cable price report he cited applies only to basic cable packages consisting primarily of broadcast channels.

That's why the FCC's latest presumption is "flawed," according to John Bergmayer of consumer watchdog Public Knowledge. He says large cable operators "bundle cable television with high-speed broadband and often have control over valuable programming. They are in a fundamentally different marketplace position than the small cable operators that Congress is concerned with."—MF



THIS *NEVER* HAPPENS. AMERICA'S TOP DEALERS *ALL* AGREE



“ The PSB Imagine T3 speakers at \$7500 a pair set a new standard for performance that can't be matched without spending more than \$20,000!”

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Gramophone**

“ When I first sat down and listened to the PSB Imagine T3 (\$7500/pr.), I thought, wow, these are really good! Dynamic, powerful and effortless. The longer I sat, the more I smiled.”

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“ The Imagine T3 loudspeaker takes PSB to a whole new performance plateau. It's not just 'good for the money' — it's just stunning all on its own.”

**Alan Goodwin,
Goodwin's High End**

“ The PSB Imagine T3 is truly exceptional in every important way. At \$7500 per pair, our customers will take full advantage of this high end bargain!”

**Ralph Cortigiano,
Take 5 Audio**

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**Alan Jones,
HiFi Buys**

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psb
SPEAKERS



In the Privacy of Your Home Theater



As you may have noticed, things are becoming more complex. Blame Moore's Law, or whatever. But things are complicated. To help us manage that complexity, companies are devising even more complicated things that give us, the human users, the illusion of simplicity. However, a recent Google patent application, aimed at simplifying the operation of things like home entertainment systems, is just downright creepy.

The Google patent application in question (DeVaul, et al.) was filed back in 2012 but was just recently published by the U.S. Patent Office. Titled "Agent Interfaces for Interactive Electronics that Support Social Cues," it proposes a novel way to control media devices. Terrific! I own about 90 remotes and never really learned to use any of them. Maybe this will be better. Well, it might be better, except for all the disturbing nightmares it would give me.

Huge numbers of patents are filed and most are never realized, and I hope this application remains a paper document. For starters, the application

or whatever. If ambient sounds prevent voice recognition, the device could simply read your lips.

So, we have an anthropomorphic device operating as an intelligent remote control. At least Google believes the anthropomorphism offers advantages. According to the patent application, "Some users, especially young children, might find these forms to be attractive user interfaces. However, individuals of all ages may find interacting with these anthropomorphic devices to be more natural than interacting with traditional types of user devices." Hmmmmmm.

The question is, would you really want a device like that in your home? I suppose it could be locally smart enough to handle all the operations, but something tells me that Google would prefer to run it with cloud-based servers. So, this little bugger with cameras for eyes and microphones for ears is hanging out around my house, and it is specially designed to monitor my personal activities, and it's jacked into the Internet. Riiiiiiiiight.

The patent application also describes a feature where the device is still watching and listening even when it appears to be "asleep." OK, I understand that a sleep mode can save battery power, but that crosses the creepy line. In fact, it's right up there with the new Hello Barbie doll that converses with kids via ToyTalk technology and a Wi-Fi link. Under Barbie's terms of service, recordings of the kids' conversations may be saved and "used for research and development purposes." Sure, nothing could ever go wrong with that invention, either.

Call me old-fashioned, but if I had a TV in my bedroom, I sure wouldn't want this little stranger danger in bed with me. And I wouldn't want it in my home theater, or anywhere in my house. And if my neighbor had one, and I saw it looking out the window holding a tiny pair of binoculars—well, then I'm heading down to my garage and getting out my chain saw.

The inventors at Google apparently haven't watched enough Chucky movies.

suggests that inventors at Google haven't watched enough *Chucky* movies. The preferred embodiment calls for "an anthropomorphic device, perhaps in the form factor of a doll or toy [that] may be configured to control one or more media devices." For example, the invention might be a doll sitting in your home theater chair, with cameras in its eyes and microphones in its ears. When you enter the room, it hears you and turns its head toward you. As the patent application puts it, "the device may aim its gaze at the source of the social cue." Then it visually recognizes you or listens for your vocal commands and turns on your favorite TV channel

Charter and TWC to Merge

The merger of Comcast and Time Warner Cable had just been declared dead when Charter popped up and offered \$78.7 billion for TWC. The Comcast-TWC deal would have made the nation's largest cable operator even larger, while the Charter-TWC deal would create the second largest. The enlarged Charter would have 23.9 million video and broadband subscribers, a little less than Comcast's current 27.2 million—but that's a lot more than Charter's current 5.9 million customer base.

Charter is simultaneously acquiring Bright House—a smaller cable operator with no debt, and therefore more borrowing capacity—for \$10.4 billion. That has enabled it to make a more attractive offer to TWC, following several fruitless offers in 2013.

Will this latest cable merger survive regulatory scrutiny? The withering gaze of the U.S. Justice Department and the FCC capsized the Comcast-TWC ship. In public, FCC chair Tom Wheeler struck an aggressive pose, saying that "in applying the public interest test, an absence of harm is not sufficient." But in private, he went out of his way to tell both Charter and TWC that he'd be open to their merger, said sources quoted in *The Wall Street Journal*.

Charter's broadband policies may have made the deal look better to the broadband-minded FCC. Charter imposes no data caps, usage-based pricing, or early-termination fees. And it is not opposed to net neutrality, a major FCC policy initiative.

If the deal goes through, TWC subscribers may get a new look and feel, thanks to Charter's new cloud-based Spectrum Guide.—MF



Pizza Box Turns Into Projector

Don't pizza and video projectors go together? If they don't, they should, says Pizza Hut. *The Verge* reports that the chain is delivering pizza in a special box that turns into a projector. Open the box, and you'll find a lens on top of your pizza. Remove pizza, punch hole in front of box, insert lens, use smartphone to scan code on side of box, then put phone in box. The phone will start unspooling a free movie, spewing light through the lens onto the wall while you make your belly happy. The projector-box was designed by the mad men at Ogilvy Hong Kong—and you've guessed the catch. That's the only place where it's available.—MF



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NBC in Your Pocket



With the small screen going mobile, TV networks are chasing viewers. The number of people who subscribe to Comcast's Internet service surpassed its video subscribers for the first time this year. As the owner of NBC, Comcast is likely hearing, "Philadelphia, we have a problem."

So maybe NBC's mobile app can keep viewers flirting with the Peacock between texting, Facebook, Candy Crush, and YouTube.

To compare the NBC app to the *Today-to-Tonight* linear network, I loaded the iOS and Android versions into my iPad and smartphone. The app asks that you authenticate yourself as a cable/satellite subscriber. From the perspective of Comcast, the nation's largest cable operator, there are two classes of viewers: subscribers and freeloaders.

Signing in allows you to see new episodes of select shows the day after they air and access to full seasons of particular series. (Freeloaders aren't shown the door, but their choices are limited.)

I found live TV the best reason to use the NBC app.

You can watch the live simulcast of your local station (not available in all markets). You can also watch entertainment and news programs on demand, which includes new and old NBC series. There was a retro feel to viewing an entire hour of *Miami Vice*—not only because it lacked high-def but because you're made to sit through multiple commercials. Such commitment is most likely to come from junkies who missed *Meet the Press* or *Days of Our Lives*. Given that our attention span is less than that of a goldfish, we're more likely to forgo any full episode and gravitate to clips from *Late Night with Seth Meyers*.

The most surprising feature of the NBC app was being able to binge-watch the entire season of *Aquarius*, even as new episodes were still rolling out weekly on NBC.

I found live TV the best reason to use the app such as watching *Today* on the



bus into the city. Sitting at a table with a TV above the restaurant's bar, I whipped out my phone to see American Pharoah win the Triple Crown when the TV was blocked by patrons. I had previously watched the Preakness on my iPad, which goes to show that sports were made for live apps.

The NBC app includes closed captioning. You can pick up where you left off when returning to an on-demand episode. You can share the title of what you're watching on Facebook from the app. The app is Airplay-enabled for mirroring the screen to your Apple TV. If you have a network A/V receiver, you can send the sound to your home theater speakers, but audio is limited to stereo. The app scales up nicely to 1080p for screens that support high def.

On a related note, Dyle TV pulled the plug in May. NBC had been one of the few participants in this system that inserted a mobile-ready signal into free, over-the-air TV broadcasts (Belkin Dyle Mobile TV Receiver). Besides lacking on-demand capability, the system seemed doomed as consumer electronics makers concluded that DTV stations had already lost the wireless data wars to cellular, Internet, and Wi-Fi delivery.

Though I enjoy its content, the app is risky to use much outside of Wi-Fi. As my cellular billing cycle reached the end of the month, the data usage cap was getting perilously close. This (and the inability to download a show for later viewing) may prove the Achilles' heel for the app. You can set the NBC app to rely exclusively on Wi-Fi (instead of 3G or 4G), but data by Wi-Fi isn't always practical—especially when you're mobile.

Networks Knock 'Skinny' Verizon

Pay-TV bundles bulging with never-watched channels have been the bane of consumer groups. They've long supported the concept of à la carte cable, which would let subscribers buy just the channels they want. Verizon's FiOS Custom TV package isn't exactly à la carte—but it does put the typical pay-TV bundle on a drastic diet. And that "skinny" package, as some call it, is making some networks very unhappy.

Custom TV starts with a core bundle of 35 basic broadcast and cable channels for \$55. You then pick two out of seven add-on Channel Packs at no extra charge, plus additional ones for \$10 each. The add-ons are arranged in themes: Lifestyle, Entertainment, News & Info, Pop Culture, Kids, Sports, and Sports Plus.

The New York TV stations of Fox- and Disney-owned ABC, as well as Disney's ESPN Radio, refused to air Verizon ads touting the skinny bundle, though ABC affiliates in a few other cities acquiesced. Disney, Fox, and NBCUniversal say the skinny bundle violates their programming contracts with the telco-TV operator.

"Disney's anti-competitive tactic is only hurting the consumer," Verizon shot back. "From our perspective, there is no dispute." —MF



HDMI 2.0a: What, Again?

HDMI 2.0a is almost upon us. But why? Didn't A/V manufacturers just assimilate HDMI 2.0?

The answer is that HDMI 2.0a will further improve picture quality, firming up 2.0's Ultra HD support with complementary HDR (high dynamic range) technology. Does that mean 2.0a will transmit video in a new way? Not really—but it will add metadata extensions to enable the display to tweak color and contrast for greater realism. This will turn your Ultra HD into Super Duper Ultra HD (not an official moniker).

With the HDMI 2.0a spec just having been approved by the HDMI Forum, it will take a while to trickle into TVs. Most 2015 models will not support 2.0a and HDR, although Sony has confirmed that some of its recent sets will support them with a software update. When HDMI 2.0a does come to market, it will not require a new kind of HDMI cable. Your existing cables will work just fine. —MF





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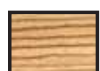
Finish Options



Black ash



Walnut



Zebrawood



Reference Tracks

MIKE METTLER

Graham Parker Uses Some Choice *Mystery Glue* to Squeeze Out Hi-Res Audio Sparks



Graham Parker has a surefire way of ensuring his long-time backing band

The Rumour understands exactly how to execute the arrangements of his new songs: “You have to kick them a lot, very hard!” he says with a devilish laugh. He is, of course, joking (I think). Parker and The Rumour are quite in sync on *Mystery Glue* (Cadet Concept/UMe), as evidenced by the hard-edged wink/nudge narrative of “Pub Crawl,” the rollicking swing state of “Railroad Spikes,” and the silver-screen teardown on “My Life in Movieland,” which features Parker going to Tinseltown with (yes) a killer kazoo solo.

It’s been a long, interesting, winding road for Parker, who now finds himself under the Universal umbrella after spending a number of years as an indie artist. Universal is also the company that owns the Mercury Records imprint, the label that Parker masterfully skewered in the infamous “Mercury Poisoning,” a blistering B-side cut around the same time of 1979’s brilliantly brusque *Squeezing Out Sparks*. No hard feelings, right? “It’s a different world after being with various indie labels,” Parker says. “It’s really interesting. I was just at Abbey Road Studios the other day doing a performance for Universal, and I found out they now own it! I’m with the record company that owns Abbey Road—so they must have a few bucks, right?”

Parker, 64, called from across the Pond to discuss his overall sonic, vocal, and SQ goals for



Mystery Glue. His passion for quality ain’t manufactured or just another sound.

MM: If you don’t mind me saying so, you were more of a “shouter” in the ’70s, so it’s been nice to hear your voice mature over the years. To me, your vocal on *Mys-*

tery Glue songs like “Pub Crawl” encapsulates where you’re at today. I think *The Mona Lisa’s Sister* (1988) was the turning point after a certain production style got in the way of your intentions on your mid-’80s recordings. You righted the ship on that album.

GP: I think you’re right. That’s when I said, “Stop this massive

drum sound! Let’s make an album where the basis of it is a guy with a guitar, singing.” That’s been my process ever since then. I’m a singer/songwriter first and foremost. Forget all the other junk. I want my records to reflect that every time, even all the hard-rocking tracks.

MM: Do you think high-resolution 96-kHz/24-bit downloads should be the way people listen to what you’re doing now?

GP: Some European journalists I’d been doing interviews with had gotten files of the new album, and they said to me, “I know it’s going to sound better than this when I get the high-def [version].” They want the high-def, and people’s ears are going back again that way. We’ve been fooling around for too long with these tiny MP3s. It’s all very convenient for musicians to send somebody an MP3 for them

to learn the chords or whatever, but I think we’re really going back towards high-def listening. People want to be enveloped in the music.

After my co-producer/engineer Dave Cook and I had mixed the album, Andrew [Bodnar], our bass player, played it on a CD, and he said, “It feels like I’m being enveloped in this warm sound.” He was very pleased with it. And obviously, it’s come out on vinyl as well, which is quite good. I think people should definitely listen to it in the hi-res format if they can, on a high-quality system.

MM: The convenience of MP3 sold us on that format in the beginning, but when you, as a producer, go from that final mix to the master and then find things that are missing, that has to be frustrating.

GP: When we’re in the studio, we’re trying to make a seriously *great-sounding* record. We’re trying to make an analog-sounding record. We used the computer purely as a tape recorder on this record. We go through analog gear, but it’s not recording to tape, which is something I don’t want to go back to. For one thing, 24-track tape costs a lot of money, and it costs a lot to make an album. But you can make a record sound old and analog—the sound of when they were good—to a certain extent. I’m listening to every detail on the record, and so is Dave Cook. Of course we want people to hear it very well. When you bring people into the studio to hear the mixes, you say, “Get a load of this on the big speakers!” Do you know what I mean?

An extended version of the Mettler-Parker Mystery Glue Q&A appears in The S&V Interview blog on soundandvision.com.

CD

LABEL: Cadet Concept/UMe

AUDIO FORMAT: 44.1-kHz/16-bit PCM Stereo

NUMBER OF TRACKS: 12

LENGTH: 47:49

PRODUCERS: Graham Parker, Dave Cook

ENGINEERS: Dave Cook, Helen Atkinson, Robbie Nelson

PERFORMANCE ★★★★★

SOUND ★★★★★

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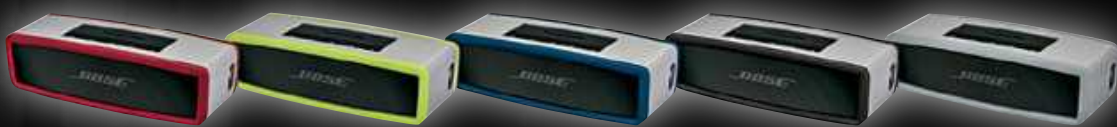


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THIS MONTH'S HOT STUFF...



◆ Bose SoundLink Mini II Bluetooth Speaker II

The popular SoundLink Mini has been updated with several new features, including multi-connect functionality for simultaneously linking two devices to the speaker, a built-in microphone for using the Mini as a speakerphone, and voice prompts that walk you through initial pairing; the eight most recently used devices are stored in memory to ensure a quick connection when you're ready to stream. In terms of sonics and size, the Mini II is the same as its predecessor, weighing 1.5 pounds and measuring a

svelte 2 x 7 x 2.3 inches. **Daydream:** Bose has also upped battery life to 10 hours for day-long listening. Available in black or light gray, the speaker includes a charging cradle and can be outfitted with one of nine optional accent covers (\$25 each). **Price:** \$200

Bose • (800) 999-2673 • bose.com



◆ GoldenEar Technology SuperSub XXL Subwoofer

Speaker genius Sandy Gross says the goal for GoldenEar's new SuperSub line was "to create beautifully styled, finely finished, reasonably sized subwoofers that could generate very-low-frequency pressure waves of extremely high amplitude, while delivering accurate and precise low-frequency performance that is both highly impactful and extremely musical." Translation: The XXL has looks that kill (for a sub) and is built to rock the house when duty calls. **Watts Up:** At its core is a 1,600-watt digital amp originally developed for the flagship Triton One speaker, a sophisticated digital processor that manages the audio signal all the way down to 10 hertz, and patent-pending dual-plane topology that mates two outward facing 12-inch drivers with sub-bass radiators that fire from the top and bottom of the high-density Medite cabinet. **Price:** \$1,999

GoldenEar Technology • (410) 998-9134 • goldenear.com



➔ Wireworld Nano Series Flexible Minijack Cables

Until the world is truly wireless—meaning wireless power, wireless everything—we're stuck with cables. So we might as well make the best of it. Designed for use with headphones and portable devices, Wireworld's Nano Series cables are described as ultra light and flexible. **Built to Last:** The cables are insulated and utilize the company's patented DNA Helix design, which is said to "channel the energy of the electromagnetic signal more efficiently." Prices for 1.5-meter length cables range from \$40 for the Pulse with molded plugs and oxygen-free copper conductors to \$575 for the Nano-Platinum Eclipse with carbon-fiber plugs and solid silver conductors.

Wireworld • (954) 474-4464 • wireworldcable.com





↑ **MartinLogan Stealth Architectural Series Speakers**

We field tons of new product pitches every week, and most are either boring or peppered with ridiculous hyperbole, which is why we continued reading when MartinLogan's marketing person described their new architectural speakers as "seriously bad ass." All three models—the two-way Axis (\$1,149) and three-way Edge (\$1,699) rectangular in-walls and the Vanquish ceiling speaker (\$1,399)—are designed for easy installation and have beefy cast-aluminum frames, spiffy gloss-black baffles (in case you want to show off), concealed mounting hardware, and bezel-free magnetic grilles to make the speakers as inconspicuous as possible. **High-Tech Accordion:** But the coolest shared feature—sonically speaking—is ML's sweet-sounding Folded Motion tweeter, which works with a high-end crossover network comprising electrolytic capacitors, custom wound inductors, and protection circuitry.

MartinLogan • (785) 749-0133 • martinlogan.com

➔ **Sewell Ghost IR Blaster**

Don't be scared. It's not really a ghost, but it may be the world's first battery-powered infrared (IR) repeater. The Ghost provides a no-fuss solution for anyone who wants to control A/V gear from behind closed doors. Put the peel-and-stick IR emitter inside the cabinet and stick the tiny IR receiver on the outside; the foot-long flat wire running between them is thin enough to slip between cabinet doors.

Long Ranger: Battery life is rated for 18 to 24 months, and the receiver has a generous 26-foot range so you can control your gear from the back of the room. The system is compatible with dual-band and RC-MM infrared signals. **Price:** \$35

Sewell • (800) 709-1345 • sewelldirect.com



HOW TO BUY AN A/V RECEIVER

AVRs are no longer the only choice for home theater, but they're still the best. **By Rob Sabin**



Oh boy, the times, they are a changin'. With the explosion of integrated soundbar offerings—including some pretentious premium models—it would be easy to dismiss the audio/video receiver, once the great ruler of the home theater world, as an aging relic. Enthusiasts know better. Sure, AVRs are more complicated to hook up than an all-in-one soundbar, and receiver-based systems virtually scream for a universal remote (or at least a kick-ass control app) to ease day-to-day operation. You need to run all those cables, too. But what you get in return for spreading out your (carefully selected) speakers and installing a bona fide, hard-core audio amplifier at the heart of your system can be summed up in one word: performance. It all comes out as improved dynamics (the ability to react to sudden peaks in the audio program), a more realistic soundstage (sounds appearing in distinct locations), and greater detail (especially at loud volume) than you're likely to hear from any soundbar or small, powered speaker system. Factor in Dolby Atmos and DTS:X, the new object-based surround formats that are so far only available in receivers and separate surround processors, and you've got a compelling argument for sticking with the tried and true AVR.

All-in-One Fun

An A/V receiver combines two separate audio components in one box: a preamplifier/surround processor (often called a pre/pro) and a power amplifier. The pre/pro is where audio and video switching occurs, allowing you to connect multiple sources to the same AVR and select each with the push of a button.

● **Pioneer**
VSX-1130, \$600 (top);
Sony STR-DN1060, \$600 (middle);
Onkyo TX-NR545, \$599 (bottom)



● **Denon AVR-X2200W, \$799**

Once selected, your source components (a cable box, Blu-ray player, smart TV, or even your smartphone) deliver a low-level audio signal to the unit's preamp section, where it can be manipulated for volume or tone (equalization) adjustments and surround decoding before being sent to the AVR's power amp section.

The surround processor section decodes the multichannel digital audio bitstream signals from discs, broadcasts, or Internet video streams—say a Dolby Digital or DTS soundtrack—and directs the appropriate sound to each speaker. Matrix-surround signals encoded onto stereo analog tracks will also be decoded here. Alternately, the surround processor can take a two-channel stereo track and derive a form of surround sound from that, utilizing all the additional speakers in the system. Once all that's done, the power amplifier simply provides gain to pump up the signal level and drive your speakers to sufficient (if not earth-moving) volume.

How Many Speakers?

We remain committed to the idea that the basic 5.1-channel configuration is sufficient for an engaging home theater experience. This includes front left-, front center-, and front right-channel speakers; a pair of surround speakers placed ideally along the side walls (and slightly behind the prime seats); and a dedicated powered subwoofer (the .1). Blu-ray Discs and streamed movies that carry discrete high-resolution 7.1-channel soundtracks have become more common in recent years, which helps justify adding back-wall surrounds, but any extra speakers beyond 5.1 channels are an enhancement, not a requirement. If your AVR comes with extra channels, they can often be configured to drive a pair of speakers in another room, usually referred to as Zone 2.

Until the introduction of Dolby Atmos for the home, the only way to make use of a nine- or even 11-channel AVR (besides running extra zones) was with processing that artificially derives information for additional front-wall-mounted height or width speakers. With no discrete soundtracks available, the value of adding those extra speakers and amplifiers remained dubious.

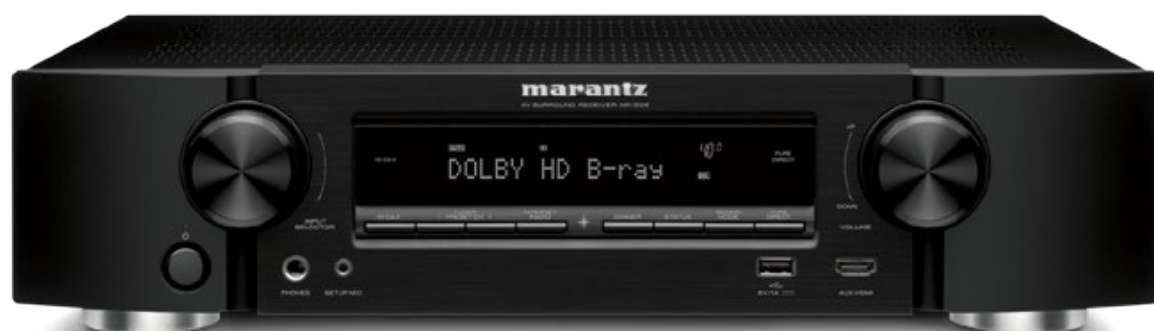
But object-based surround sound, which provides discrete information to two, four, or even more ceiling-mounted speakers (or the equivalent), changes that equation. See "Surround Modes," below, for more on object-based surround.

How Much Power?

Amplifier power is a critical spec for any AVR, but it's difficult to shop by the numbers. Any receiver priced over \$500 today is likely spec'd at or near 100 watts per channel, each with an appropriate 0.1 percent total harmonic distortion measurement (at least, with only one channel running at a time). So what's the difference between one similarly rated amp and another? The answer, more or less, is what we call "headroom." A great amp with power supply capacity to spare will rise to the occasion on loud, complex passages on multiple channels without introducing audible distortion. Other AVRs will sound coarse, or run out of steam and clamp down on power output to all the channels (or even shut down temporarily) to avoid overheating.

A telling sign is the five- and seven-channels-driven test bench measurements *Sound & Vision* includes with AVR reviews. Although this torture test is far more demanding than any real-world situation an AVR is likely to encounter, power output that meets or approaches the published two-channel specification with five or seven channels working all out simultaneously usually indicates a more robust power supply and the ability to drive your system to louder levels with less strain. Keep in mind, though, that the amp that achieves this isn't always the biggest or heaviest. Newer circuit topologies—notably Class D switching amps—can deliver their power to the speakers more efficiently than traditional hotter-running Class AB or Class A amplifiers. However, Class D AVRs seem to vary

● **Marantz NR1506, \$499**



widely in subjective sound quality. Read the reviews before you decide.

THX-certified AVRs, when mated with THX-certified speakers, will guarantee the ability to achieve cinema reference volume level at the listening position in a room whose cubic volume is specified by the level of certification. Other measures of performance, compatibility between components, and simplified setup chores are also accounted for in THX certification. Visit THX.com for more information.

Surround Modes

Every modern receiver offers the same basic surround modes to directly decode the soundtracks embedded in today's software and broadcasts. Although these are often accompanied by additional playback modes, and experimentation is encouraged, you are best advised to play back your content using whatever mode is native to the original soundtrack. This will likely be standard Dolby Digital and DTS embedded on DVDs and the high-resolution lossless formats Dolby TrueHD and DTS-HD Master Audio found now on most Blu-ray Discs. The latter formats are noticeably superior to the earlier lossy compression formats. Most TV broadcasts carry lossy Dolby Digital, and some streaming content from major services, such as Vudu and Netflix, are encoded with Dolby Digital Plus, which provides modest benefits in transmission efficiency or sound quality. Set your new AVR's surround mode to its automatic setting, and if you've selected bitstream audio output from the menus in your Blu-ray player and other digital sources, the receiver should recognize what's on the source material and set the surround mode accordingly. If you set your player to PCM audio output and hook it up via an HDMI connection, full multichannel decoding will usually take place in the player, and it will be indicated as multichannel PCM on the AVR's display. The sound quality should be about the same either way, though Blu-ray players can only pass the remote's button sound effects and secondary simultaneous audio tracks associated with the disc extras if the player is set to PCM.

The next suite of essential listening modes found in AVRs is for decoding matrix-surround-encoded two-channel sources and converting two-channel stereo recordings or TV shows into quasi surround sound. The best known of these are probably Dolby Pro Logic IIx and DTS Neo:6. These vary in their effectiveness depending on the program material, but one or both are generally avail-

How to Buy an A/V Receiver



● Onkyo TX-RZ900, \$1,599

able as part of the Dolby and DTS processing package included with the receiver.

Dolby Pro Logic IIz, Audyssey DSX, and even the 11.1-channel DTS Neo:X processing modes, previously used to derive signals for front-wall mounted height and width speakers, were common till recently in mid-level to high-end receivers. These have now been outmoded with the latest object-based surround formats, Dolby Atmos and DTS:X. Instead of using front-wall-mounted speakers, these formats use ceiling-mounted speakers to provide discrete surround effects that can come from directly over the listener. (As an alternative, Atmos systems can use upward-aimed ear-level "Atmos-enabled" speakers that bounce the sound for the height effects off the ceiling.) In our tests so far with Dolby Atmos, using Atmos-encoded Blu-ray Discs, we've heard noticeable benefit to installing at least four Atmos height-effect speakers, which would require a minimum 9.1-channel AVR that includes the Atmos processing.

At this writing in late July, DTS:X-enabled AVRs were not yet available for testing, though DTS has stated that their system is flexible in the placement of speakers and we are assuming for now that a Dolby Atmos setup can function for both formats. What remains an issue is the availability of discs and streaming content that carry these discrete object-based soundtracks. Both formats also come with modes that can upmix regular stereo and 5.1-/7.1-channel tracks to derive signals for the height speakers, though until the library of discrete titles ramps up, there's less incentive to spend the extra money. Still, future-proofers should take good note of what potentially lies ahead.

Compression and Volume Modes

When you need to turn the volume down to avoid disturbing neighbors or family during the loudest passages, dynamic compression and volume normalization help your ability to hear quiet dialogue without being blasted by the special effects and spare you from aggressively riding the volume control during TV shows

and movies. Some AVRs still come with a Night mode for this, but they don't typically achieve the performance of recent third-party offerings by Dolby, Audyssey, and THX. Audyssey Dynamic EQ and THX Loudness Plus (offered on THX-certified receivers) seek to maintain proper frequency balance and dialogue clarity as the volume gets lower, as does Dolby Volume. Dolby Volume, as well as Audyssey Dynamic Volume, can also help minimize swings in loudness as you transition between TV programs and commercials, or between source components with different output levels that you can't adjust in the source or receiver.

Hi-Res Audio

Increasingly, more and more music is becoming available for download as high-resolution digital audio files—defined as better-than-CD quality. High-resolution audio discs also abound these days—either as SACD releases, or as DVD or Blu-ray Discs offering stereo or multichannel music files. Enjoying these files at their best quality means having a digital-to-analog converter, or DAC, that is compatible with the file type, which may be designated by both a sample rate and bit depth that describes its resolution (for example 96-kilohertz/24-bit or DSD), and/or by the digital wrapper used to package it (such as high-bit-rate MP3 or a compressed lossless file like FLAC or ALAC). The best high-res DACs still tend to be standalone devices that go between your computer and an analog input on your AVR, primarily because they offer "asynchronous" operation that improves sound quality by taking control of the data stream and not

relying on the originating computer's internal clock. But many AVRs now offer built-in DACs that can handle files up to 96-kHz/24-bit resolution or higher, and we're seeing AVRs now that can directly accept and decode DSD files. A very few AVRs also offer an asynchronous USB connection, but this remains a rarity in the 2015 model crop.

Video Processing

Programming from TV broadcasts or DVDs must eventually be scaled and/or deinterlaced before being displayed on a native 1080p HDTV or one of the new Ultra HD/4K sets. Most often this is done by the display, but some better AVRs offer onboard video processors, often from respected brands like Marvell Qdeo or Anchor Bay, to perform these functions in the receiver, sometimes to better effect. Another benefit to onboard video processing is the ability to cross-convert the analog composite and component video from legacy components like VCRs or game consoles for viewing through the AVR's HDMI monitor output. But don't assume onboard video processing is either standard or mandatory for a great audio experience; some very good AVRs skip the fancy video processing to put the money into better-quality audio circuitry and simply act as HDMI switchers.

Auto Setup and Room Correction

Setting up a receiver properly involves making menu selections to tell the AVR how many and what type of speakers you have, what their relative locations are to the primary listening position, their bass capabilities, and what volume level each should be set at relative to the others so the listener hears a coherent soundfield. You can do all this manually—or just run the microphone-enabled auto-setup routine that's included with most AVRs nowadays. In addition, many receivers will take it a step further and apply equalization across a range of frequencies to smooth out the in-room response, a particularly helpful benefit when it's applied to the low bass frequencies where most rooms have their worst problems.



● Yamaha Aventure RX-A3050, \$2,200





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How to Buy an A/V Receiver

Audyssey still has the best-known solutions for auto setup/EQ, with different levels of resolution applied to products at different price points. (You can read more at audyssey.com.) AVR makers that don't use Audyssey often have proprietary systems that range in quality. Again, you'll have to read the reviews to see whose systems work best. Either way, you'll usually have the option to tweak the results or ignore them.

Connectivity

The HDMI interface widely used for digital video source components, switchers, and displays evolves all the time. HDMI 2.0, which handles 4K content at 60-hertz frame rate, is the new kid on the block, and should be accompanied by compliance with the latest digital copy protection scheme HDCP 2.2. (HDMI 2.0a, which some models can be upgraded to at a future date, will allow passthrough of high dynamic range (HDR) 4K content that is planned for the future.) You may still find some AVRs out there offering HDMI 1.4 connections, and, critically, some holdovers from the 2014 model year that offer HDMI 2.0 but without the updated HDCP 2.2 copyright management. If you expect to be able to use your AVR to switch among future 4K source components such as Ultra HD Blu-ray players or streaming media players, you'll want both HDMI 2.0 and

HDCP 2.2. If the AVR features don't list HDCP 2.2, it's probably not there.

Legacy inputs for composite, S-video, and component video sources are becoming harder to find on AVRs, so if you have older non-HDMI components, check carefully to make sure you have enough inputs of the right type. One legacy input that's making a bit of a comeback is the classic phono input, thanks to surging vinyl LP sales. A dedicated phono preamp can be added to any AVR that doesn't have one.

Among the most used connections on AVRs these days are those that let you take content off your smartphone, tablet, or iPod. Apple AirPlay, straight Wi-Fi, and Bluetooth connections (sometimes via an adapter) are common in various combinations and let you push music from your mobile device to your network-connected AVR. AVRs also offer Made for iPod USB connections, which allow direct digital connection of an iDevice. MHL inputs let you feed audio or video from compatible Android phones.

Network and Internet Services

Nearly all AVRs beyond entry-level will connect to your home network with a wired Ethernet or wireless Wi-Fi link. More often than not, they feature the ability to directly stream music via services like Pandora and Spotify, as well as some facility to capture Internet

radio streams from distant lands and your local stations (sometimes a more reliable and better-sounding option than an FM antenna). But these services and many more can also be easily added to an existing AVR with an inexpensive streaming media player. DLNA compliance, another common feature, lets you call up audio and video files from your network-attached computer or hard drive to play on your AVR and HDTV.

Remote Control Apps

Pretty much all the major AVR brands now offer apps that turn your smartphone or tablet into a touchscreen remote for your receiver. All that's required is a network connection to the AVR and a wireless Wi-Fi network for the app to talk to the receiver. AVRs are notoriously difficult to operate thanks to their myriad capabilities and remote controls that are littered with tiny, poorly labeled buttons, so a good control app can be a godsend, especially for operating your system in a dark room or running a second zone of audio off the AVR (the touchscreen usually allows selection and browsing of network sources, as well as volume adjustment, from inside the second zone). If you've got an Apple iPhone, iPad, or iPod touch, or an Android phone or tablet, download the free app for the receiver you're considering and check it out in demo mode. ♦

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Atmos for a Song

By Mark Fleischmann

Pioneer VSX-1130 A/V Receiver

PRICE \$600

LESS THAN A YEAR HAS PASSED since I called the Pioneer VSX-1124 both “a top-performing receiver at a competitive price point” and, just in case that seemed too dispassionate, “a miracle.” So much has happened since then. For starters, Dolby Atmos happened, adding object-oriented surround with dedicated height channels to the basic surround footprint. Yet it’s almost a shock to see Atmos in a \$600 receiver, the new VSX-1130. If you’re still on the fence about Atmos, Pioneer hasn’t stopped there. Bluetooth, formerly a \$99 accessory, is now baked in. And what’s that thing sticking up in the back? Oh, that’s the Wi-Fi antenna, formerly a \$129 accessory. Those two changes essentially add \$228 of value to Pioneer’s \$600 receiver, and together with Apple’s AirPlay, they make it what I like to call a wireless triple threat.

The New Receiver King

Onkyo’s and Pioneer’s A/V businesses have merged to form Onkyo and Pioneer Corporation in Japan. The original Pioneer Corporation is still in the car audio market, but the new Pioneer/Onkyo entity handles the brand’s A/V receivers and bills itself as the world’s largest receiver manufacturer.

Pioneer’s receivers continue to be split between the regular Pioneer line and the Pioneer Elite, with each getting two new models. The 7.2-channel VSX-1130 falls on the regular Pioneer side along with the 5.2-channel VSX-830 (\$400). The extra two channels in the VSX-1130 are what enable it to be Atmos-capable; these can be allocated to a pair of Atmos height channels. Along with the dual subwoofer channels, that makes it a 5.2.2 model in Atmos-speak. Two more channels

AT A GLANCE

+ Plus

- **Dolby Atmos 5.2.2**
- **Wi-Fi, AirPlay, Bluetooth on board**
- **HDCP 2.2 rights management**

– Minus

- **Tight, crowded remote control**

would be needed for 5.2.4, which would provide for better Atmos elevation effects throughout the room. Should we call 5.2.2 “Atmos Lite”?

Along with Atmos and the wireless triple threat, this receiver adds HDCP 2.2 compliance to its

HDMI ports, which Pioneer specifies as “Full Bandwidth HDMI (4K Ultra HD 60p/4:4:4),” though without the HDMI 2.0 designation. That means it can do the copyright handshake with future copy-protected UHD signal sources. HDCP 2.2 was largely absent from last year’s 2014 AVR models, and even some TVs, so it’s good to see that changing.

With an iPhone- and iPod-compatible (but regrettably, not PC-capable) USB jack on the front and an MHL-enabled HDMI input on the back, this receiver is compatible with a variety of smartphones and tablets. HTC Connect allows HTC One smartphones to share music files with the receiver. On the audio streaming side, the Pioneer offers integrated Spotify, Pandora, and vTuner. I’ve yet to see a receiver that offers the trendier Apple Music (just

announced at press time) and the audiophile-approved lossless Tidal (under new, higher-profile ownership). The only thing noticeable subtracted from last year’s feature set is Roku Ready certification, which supported the MHL-based Roku Streaming Stick. Since there is still an MHL-enabled input, and because Roku now offers a version of its Stick that works with any HDMI input, this may be inconsequential; I was unable to verify.

Boot up the graphic user interface, and you’ll see changes. While Pioneer hasn’t altered the GUI’s familiar font or spartan color scheme, it has reorganized the home screen into just three items: Network/Bluetooth, MCACC Pro (for auto setup and room correction), and System Setup (for manual settings). In addition to offering a simpler entry point than its cluttered predecessor, this new GUI pays tribute to the increasing importance of network and wireless features, a neat counterpart to the integrated Wi-Fi,



● The 7.2-channel VSX-1130 is 5.2.2 Atmos capable.

RATING

Pioneer VSX-1130 A/V Receiver
 Audio Performance ★★★★★
 Video Performance ★★★★★
 Features ★★★★★
 Ergonomics ★★★★★
 Value ★★★★★

THE VERDICT

With Atmos added and both Wi-Fi and Bluetooth newly baked in, this receiver is a better value than its immediate \$600 predecessor.

A/V RECEIVER

PIONEER VSX-1130 A/V RECEIVER

PRICE: \$600

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AirPlay, and Bluetooth.

The iControlAV5 app, now in its fifth generation, is the best I've seen in a receiver. Good thing, because the crowded remote, while functional, has an unfriendly multitude of tiny buttons. The home network connection can be set up with an iOS or Android device already connected to the network—neat, eh? AVNavigator, a Web-browser control option that formerly required installation on a PC, is now built in. This model's version of AVNavigator also has an Interactive Operation Guide that explains features when you click on reproductions of remote buttons. Although it runs on Windows PCs (Vista and later) and Macs (OSX 10.8 and later), it also worked well on my iPad. The guide is available only for the VSX-1130 (not the VSX-830).

The Pro version of MCACC—the Multi-Channel Acoustic Calibration System, Pioneer's proprietary version of auto setup and room correction—has been updated to handle Dolby Atmos. It supports four-band subwoofer EQ for two subs, applying the same settings to each sub. The VSX-1130 marks the first time the Pro

version has been available in a \$600 receiver; last year, it was limited to models costing \$1,600 and above.

Associated equipment included five Paradigm Reference Studio 20 v.4 speakers, a Paradigm Seismic 110 subwoofer, and, for Atmos demos, Pioneer's own SP-EBS73-LR Atmos-enabled monitor and SP-EC73 center (review at soundandvision.com). Signal sources included an Oppo BDP-83SE universal disc player and an iPad mini retina. All movie demos were on Blu-ray Disc. When running the MCACC Pro auto setup, I chose the setting for the elevation modules of the two Atmos-enabled speakers in the front positions (or in Atmos-speak, top middle). Without this, the Atmos channels wouldn't have been active; the system doesn't auto-detect Atmos-enabled speakers the way it does for floor speakers. I pushed the height channels 2.5 decibels higher than the MCACC setting to make them a little more audible. (Andrew

Jones, designer of the speakers, made such a tweak when he helped me install them for my initial evaluation; if it works for Andrew, it works for me.)

Room Correction: Yea or Nay?

Shorn of its room correction, the VSX-1130 is an excellent amplifier, albeit a cut below the very best. It's a little soft-focused, and no dynamic champion, but it does make well-recorded music sound good. With MCACC Pro, imaging leaps into higher relief and timbral details emerge from the murk, though at the expense of some listening comfort. This isn't unusual; most room EQ systems have this effect in my room.

The Hobbit: The Battle of the Five Armies (DTS-HD Master Audio) won the Pioneer its usual points for intelligible dialogue and soundfield consistency. Although the effects could be scorching, MCACC delivered them with so much focus and detail that I was able to play the movie at moderate levels without missing any dialogue, even the sotto voce kind. A more capable receiver might have delivered more complex layering in the face of dynamic peaks, but this presentation worked—until I got to the climactic five-army battle. At that point, fatigue set in. Turning down the volume was one solution, but this reduced the movie's epic scale. A better solution was to switch out MCACC in favor of the pure direct mode, trading crispness and detail for a gentler tonal balance and greater listening ease.

In less militarized surround epics, the receiver and its room correction system were more consistently satisfying. *Lucy* (DTS-HD Master Audio) is a stylish sci-fi thriller from

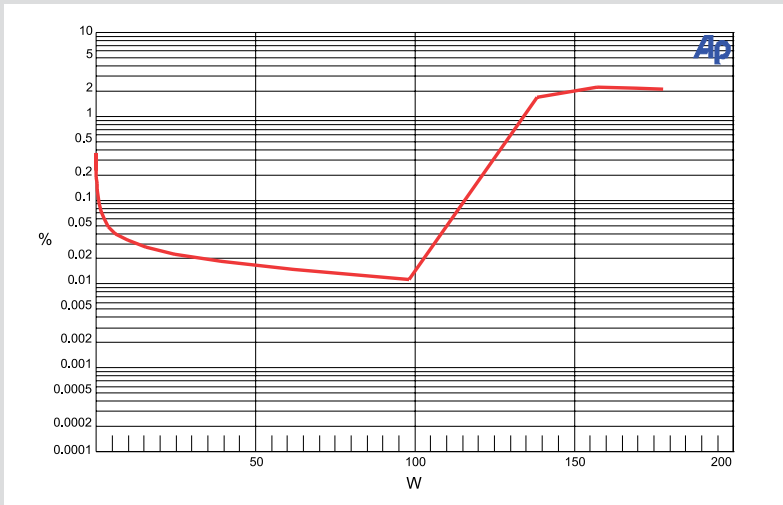
Luc Besson with an A-list cast, including Scarlett Johansson and Morgan Freeman. MCACC's four-band sub EQ shaped the synth bass into a gorgeous and satisfying harbinger of hell about to break loose. Great bass gives me a great feeling, and MCACC's sub EQ got along well with the Paradigm Seismic 110. (Incidentally, the sub comes with its own PBK EQ scheme, but I always keep it out of the loop and let receiver room correction do the work.) Whereas most other orchestral scores are string-heavy, this one gives the woodwinds and brass their moments of prominence in the soundfield, and MCACC shaped their textures brilliantly. I pined for the pure direct mode a bit less.

American Sniper (Dolby TrueHD/Atmos) was the feature-length Dolby Atmos demo. Even with the Atmos height channels pushed to higher levels, it was usually hard to discern them at work. A helicopter back-to-front flyover filled them when it zoomed from the surround speakers to the front speakers—but if I hadn't been listening for it, I undoubtedly would have missed it. The Atmos "virtual dome" didn't exactly collapse from front to back; the front just seemed slightly bigger. Naturally, I topped off the Atmos demo with Dolby's own demo disc, noting how the perception of many of the vertical pans were limited to the front of the soundfield. With two height channels, it was still subjectively enjoyable, but not as straightforwardly impressive as what I've heard with four. I came to the conclusion that the appeal of 5.1.2 isn't as strong as the 5.1.4 that Dolby recommends, at least when used with ceiling-firing Atmos-enabled speakers. I'll defer to other



Test Bench

Pioneer VSX-1130 A/V Receiver



AUDIO This graph shows the VSX-1130's left channel, from CD input to speaker output with two channels driving 8-ohm loads. Measurements for THD+noise, crosstalk, signal-to-noise ratio, and analog/digital frequency response were all within expected performance parameters. Full details available at soundandvision.com.—MJP

	0.1% THD	1.0% THD
2 Channels Continuously Driven, 8-ohm Loads	115.7 watts	134.3 watts
2 Channels Continuously Driven, 4-ohm Loads	130.6 watts	165.8 watts
5 Channels Continuously Driven, 4-ohm Loads	68.9 watts	84.8 watts
7 Channels Continuously Driven, 4-ohm Loads	67.3 watts	82.1 watts

VIDEO The Pioneer's only upconversion capability is 1080p to 4K when connected to a 4K UHD set. (This upconversion can be defeated by selecting Pure instead of Auto in the video menu if you prefer to have the 4K upconversion performed elsewhere, typically by the set.) With any other source, and a non-UHD set, the Pioneer outputs the same resolution as the input; that is, it doesn't upconvert. Therefore, our normal HD (1080i-to-1080p) and SD (480i-to-1080p) upconversion tests weren't applicable here. On the relevant tests (clipping, resolution, and 3D passthrough), the Pioneer performed flawlessly.—TJN

SPECS **Power Output:** 7 x 100 watts (8 ohms, 2 channels driven) • **Auto Setup/Room EQ:** MCACC Pro • **Video Processing:** 4K scaling/passthrough (proprietary) • **Dimensions (WxHxD, inches):** 17.1 x 6.6 x 14.3 • **Weight (Pounds):** 21.6 • **Video Inputs:** HDMI (6, version unspecified; 4K/60 Hz compatible with HDCP 2.2), HDMI-MHL (1), component video (1), composite video (2) • **Audio Inputs:** Coaxial digital (1), optical digital (1), stereo analog (3) • **Additional:** iPhone/iPod-capable USB (1), Ethernet (1), IR control (in/out), FM (1), AM (1) • **Video Outputs:** HDMI (2, version unspecified; 4K/60 Hz compatible with HDCP 2.2), composite video (1) • **Audio Outputs:** Sub pre-out (2), 1/4-inch headphone (1)

reviewers on whether 5.1.2 works with physical ceiling speakers. [Ed. Note: For more on this, see "Dolby Atmos vs. Dolby Atmos" in our September issue and at soundandvision.com.]

Viola and Vibes

In a boon to music lovers, the London Symphony Orchestra is releasing multichannel SACDs on its own LSO Live label (in addition to 96/24 FLAC via Isolive.iso.co.uk). Two works by Berlioz, the symphony *Harold en Italie* and the cantata *La mort de Cléopâtre*, feature conductor Valery Gergiev, violinist Antoine Tamestit, and mezzo-soprano Karen Cargill. As beautifully recorded content sometimes does, this SACD flattered the receiver in any mode, though I still found myself torn. With MCACC, the symphony's solo viola came through with more woody body and better articulation. Without MCACC, both viola and orchestra lost some front-row tone color, but greater depth provided more of a real concert-hall feel. Some piercing piccolo tipped the decision in favor of the pure direct mode.

Moving from multichannel SACD to mono CD (with excellent production circa 1954), I cued up Miles Davis and the Modern Jazz Giants. Except for one track featuring John Coltrane, most of the album complements the leader's trumpet with Milt Jackson's vibes and Thelonious Monk's piano—an inspired combination. While Davis himself sounded great in any mode,

● Pioneer's remote has tiny buttons, but their smartphone/tablet control app is one of the best.



the vibes clearly benefitted from room correction, taking on a dramatically and deliciously longer decay. The piano, seemingly miked at a greater distance than on Monk's own albums, also took on more rhythmic incisiveness. Switching to direct mode (with bass management) or pure direct (without) made the whole thing fall flat. Chalk up one for MCACC.

I auditioned Richard Thompson's *Still* twice, running the NPR First Listen stream on iPad via Bluetooth. Without room correction, it seemed crude, which I attributed to lossy streaming and

Bluetooth's own limitations, as opposed to Jeff Tweedy's creative production. But when I switched on the room correction, the album came alive, with vivid tone color, tight imaging, and what I can only describe as a quantum leap in musicality. It was as if someone had switched on a light. Chalk up another one for MCACC.

Pioneer receivers have traditionally combined strong performance with smart but not inspiring feature sets, suggesting that the brand cares more about sound than about jamming the most stuff into one black box. In a turnaround, the VSX-1130 competes more compellingly on features than on performance, though performance is still excellent. Dolby Atmos and adapter-free Wi-Fi, AirPlay, and Bluetooth are only the most prominent of those features; I think Pioneer's peerless app and Web-browser interface add just as much, if not more, to the attractiveness of this receiver. Pioneer has done it again, albeit not in the way I'd expected. ♦

Audio editor Mark Fleischmann is also the author of the annually updated book *Practical Home Theater* (quietriverpress.com).



● Pioneer has added HDCP 2.2 copyright management to its UHD-friendly HDMI ports.

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A Good Amp Helps

By Mark Fleischmann

Onkyo TX-NR545 A/V Receiver

PRICE \$599

MOST A/V RECEIVERS HAVE seven audio channels for reasons that date back to 1999 and are all but forgotten. The original rationale for adding two channels to surround sound's basic 5.1 footprint was to accommodate back-surround speakers for THX Surround EX (later renamed Dolby Digital EX) and DTS-ES. While I mean no disrespect to the many readers who enjoy the back surrounds in their 7.1 systems, I've been against back surrounds from the beginning. My argument in one sentence is: Three channels in front, four in back—what's wrong with this picture? I've always considered 5.1 the bedrock standard of surround sound, and I still do, even today.

Once 7.1 pushed out 5.1 in all but the lowest-priced models, manufacturers came up with new and creative uses for the sixth and seventh channels. Whether they did this to appease skeptics like me is debatable, but soon the spare pair was powering a second zone, biamplifying the front left and right speakers, or providing derivative (not discrete) height and width channels. Suddenly, the extra pair of channels went from frivolous frippery to value-packed extension of receiver functionality.

Now those two amp channels are finding a new use in the form of Dolby Atmos. Unlike the processing of derived height channels for Dolby Pro Logic IIz and Audyssey DSX, Atmos directly encodes height information. The Onkyo TX-NR545 is an Atmos 5.1.2 receiver, adding to the 5.1 footprint two ceiling-effects channels typically placed overhead or just in front of the listening position; alternately, you can use Atmos-enabled height speakers, usually firing off the tops of the front speakers. This is the bare minimum for an Atmos system. To support Atmos in both front and rear—the

AT A GLANCE

+ Plus

- **Dolby Atmos**
- **Wi-Fi, AirPlay, Bluetooth**
- **HDR support**

— Minus

- **No Ultra HD scaling**

5.1.4 minimum *recommended* by Dolby—would require nine amp channels, but this receiver is making do with what it's got. Is a little Atmos better than none?

Onkyo's Atmos Strategy

The TX-NR545 (\$599) is one of three new Onkyo receivers at the affordable (under \$600) end of the spectrum. However, it isn't Onkyo's lowest-priced Atmos receiver. That honor belongs to the TX-SR444 (\$499). Why not pay a hundred bucks less? Well, the TX-NR545 is a wireless-triple-threat receiver with

Wi-Fi, AirPlay, and Bluetooth built in, whereas the step-down model has only Bluetooth along with a little less amplifier power. At the bottom is the TX-SR343 (\$399), a 5.1-channel model that omits Atmos but manages to hold onto built-in Bluetooth. Apparently, Onkyo feels that no one, not even the least of us, should go without their wireless fix. I'd call that a sensible decision; an AVR that can't conveniently play music from a phone or tablet seems useless by today's standards.

Onkyo's Atmos strategy goes beyond receivers. Let's give quick cameo mentions to the HT-S5800 home theater in a box (\$799), which uses the HT-R594 receiver and the SKS-HT594 speaker package (\$599). Both support Atmos 5.1.2. I'd bet the rent that it's only a matter of time until Onkyo offers an Atmos 5.1.4 HTIB for a few pennies more and adopts DTS:X, the nascent competitor of Atmos.

Onkyo is a firm believer in front-panel functionality and the saving power of buttons. A row of

oversized source-select buttons runs across the front panel. Directly above it is an equally long row of nearly invisible sliver buttons that access listening modes and other functions. Complete menu navigation uses a combination of right-hand sliver buttons and a round, concave, four-way rocker switch just above them. It's easy to miss the significance of the rocker switch because it looks just like the power button at far left. But if you've misplaced the remote control, it might become your best friend.

The remote itself is simple, sensible, and not without a subtle hint of beauty, with upper keys against a matte background and lower keys against a shiny gloss background. The monochrome graphic user interface is spartan but functional enough. A control and streaming app is available for both iOS and Android devices (with an update that was unavailable at press time).

In addition to its wireless triple threat, the TX-NR545 has a few other music-savvy tricks up its sleeve. Its generous selection of Internet radio features includes not only Spotify and Pandora but also Slacker, TuneIn, Deezer, and SiriusXM Internet Radio.



RATING

Onkyo TX-NR545 A/V Receiver
 Audio Performance ★★★★★
 Video Performance ★★★★★
 Features ★★★★★
 Ergonomics ★★★★★
 Value ★★★★★

THE VERDICT

The Onkyo TX-NR545 is a wireless-triple-threat receiver with an intrinsically good-sounding amp.

A/V RECEIVER

ONKYO TX-NR545 A/V RECEIVER

PRICE: \$599

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Of course, the USB jack is iOS-capable—though none of the HDMI jacks is MHL-capable. Like most receivers (though I don't often mention it), this one is DLNA-capable, so it can grab media from a network-connected computer and other devices. The DACs operate internally at up to 32 bits and 384 kilohertz (though not asynchronously, the preferred mode of operation for any DAC). You can play files from USB-connected drives in the usual lossy, lossless, and uncompressed formats, including such rarefied ones as DSD and Ogg Vorbis.

On the video side, this receiver offers Ultra HD passthrough (but no upscaling), including support for HDR (high dynamic range) video with a planned upgrade to HDMI 2.0a. That includes HDCP 2.2 DRM to ensure that your UHD viewing won't be thwarted by copy protection.

This is Onkyo's second generation of AVRs to use their proprietary AccuEQ auto setup and room correction, which was introduced after a long run with the Audyssey family of solutions. AccuEQ measures twice: once to set level, distance, and crossover and once more to treat standing waves, those bass-polluting monsters that build up between parallel walls. You can

choose to bypass EQ for the front left and right channels, set EQ manually if you prefer, and save the results in up to three presets.

Associated equipment included five Paradigm Reference Studio 20 v.4 speakers and a Paradigm Seismic 110 subwoofer, joined by the Pioneer Elite SP-EBS73-LR monitors and SP-EC73 center for the Atmos demos. The signal sources were an Oppo BDP-83SE universal disc player, Micro Seiki BL-21 turntable, Shure V15MxVR/N97XE cartridge, and the phono stage of a Denon PRA-S10 preamp. All movie demos were on Blu-ray Disc.

A Good Amp Always Helps

Although Onkyo has long competed more on features than on sound, the TX-NR545 is based on an intrinsically good-sounding amp that delivers a musically coherent midrange and more bass than I'd expect from a \$599 receiver. That's good news for those who prefer not to alter an intrinsically good-sounding room with room correction. Onkyo's AccuEQ wasn't as effective at improving imaging in my room as I'm used to with any flavor of Audyssey or some other propri-

etary systems I've tried, though sometimes it does help, and its side effects are benign more often than not.

In *The Hunger Games: Mockingjay, Part 1* (Dolby Digital), male voices localized heavily in the sub, especially the deep baritone of Mahershala Ali (better known as Remy Danton in *House of Cards*). Checking the sub level, I found it at +3 decibels, which was totally unsuitable for my room. The center-channel setting of -1 dB may also have affected the satellite/sub balance. I knocked the sub level down to zero (still on the high side of normal for my room) and boosted the center channel to zero. (I later found out that an independent bass-boost control was accessible through the secondary Quick Setup Menu.) Once the adjustments were made, the movie unspooled compellingly, with better-rendered dialogue. The receiver handled dynamic challenges reasonably well for its pay grade.

Faster casts Dwayne Johnson as an ex-con wreaking revenge on former bank-robbing co-conspirators. The sonic hallmark of this soundtrack is the wail of accelerating cars, and I loved how the receiver preserved their growling ferocity without inducing fatigue. (I usually have a low tolerance for motorized noise.) Some other elements, including music and gunplay, were hot but not scorching. Switching off AccuEQ turned down the temperature a few degrees, but the Onkyo was listenable either way. I began to trust it and relax.

For the second time in my experiences with Dolby Atmos, I cued up *American Sniper* for a demo. The front-mounted concentric drivers of Pioneer's Atmos-enabled speakers make any receiver a dialogue champion, and the Onkyo

was no exception. As for the other set of concentric drivers—the ones that bounce Atmos height channels off the ceiling—I boosted the Atmos channels by an enormous +6 dB to get anything discernible, though that's almost certainly not the fault of the receiver. In the movie's early firing-range scene, which includes dialogue in the great outdoors, speaking voices found their way into the height channels—though to be honest, I had to put my ear to the speaker to hear them. Every Atmos demo seems to me like a whole series of missed opportunities. Why not use height for the funeral rifles?

Of course, the *Dolby Atmos Demo Disc* is far from bashful in taking advantage of the format's height capabilities. Rainfall, even with just two height channels, was "natural and lifelike," as Dolby puts it. But the fluttering leaf and other effects that precisely define the entire dome-shaped soundfield of Atmos were limited to the front of the room. This was my second exposure to Atmos 5.1.2, and I've concluded that it's underwhelming. If you want Atmos, go for 5.1.4—and that means a nine-channel, not seven-channel, receiver. If Atmos and DTS:X are the future, the seven-channel receiver may finally have become obsolete.

High-Resolution Glory

Mendelssohn's Symphony No. 5 (*Reformation*) and a couple of miscellaneous works, conducted by Sir John Eliot Gardiner, arrived on another fabulous high-resolution disc from LSO Live, the label of the London Symphony Orchestra. The package includes a hybrid SACD/CD and a Blu-ray Disc, both offering surround and stereo soundtracks. I chose the BD's 5.1-channel 96/24



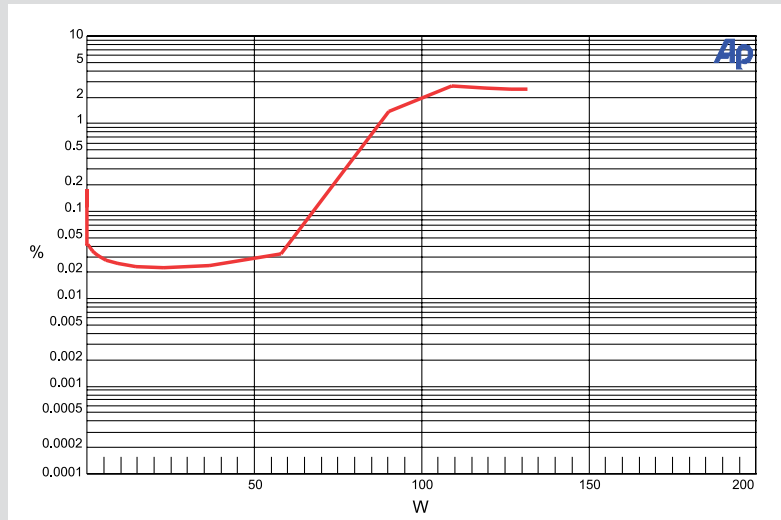
● The TX-NR545 sports numerous front-panel buttons for sources and listening modes.



See soundandvision.com/TestBench for full lab results and technical definitions.

Test Bench

Onkyo TX-NR545 A/V Receiver



AUDIO This graph shows the TX-NR545's left channel, from CD input to speaker output with two channels driving 8-ohm loads. Measurements for THD+noise, crosstalk, signal-to-noise ratio, and analog/digital frequency response were all within expected performance parameters. Full details available at soundandvision.com.—MJP

	0.1% THD	1.0% THD
2 Channels Continuously Driven, 8-Ohm Loads	67.6 watts	87.6 watts
2 Channels Continuously Driven, 4-Ohm Loads	89.0 watts	131.3 watts
5 Channels Continuously Driven, 8-Ohm Loads	46.5 watts	61.5 watts
7 Channels Continuously Driven, 8-Ohm Loads	44.5 watts	56.0 watts

VIDEO The Onkyo does not upconvert; the resolution at its output is the same as the resolution at its input. It will pass a 4K source at an HDMI input to a 4K set.—TJN

SPECS **Power Output:** 7 x 65 (8 ohms, 2 channels driven) • **Auto Setup/Room EQ:** AccuEQ • **Video Processing:** 4K passthrough • **Dimensions (WxHxD, inches):** 17.13 x 6.81 x 12.94 • **Weight (Pounds):** 19 • **Video Inputs:** HDMI 2.0 with HDCP 2.2 (6), component video (2), composite video (4) • **Audio Inputs:** Coaxial digital (1), optical digital (2), stereo analog (8) • **Additional:** iOS-capable USB (1), Ethernet (1), FM (1), AM (1) • **Video Outputs:** HDMI 2.0 with HDCP 2.2 (1), component video (1) • **Audio Outputs:** Sub (2), stereo analog (zone 2), 1/4-inch headphone (1)

DTS-HD Master Audio soundtrack. The mix makes good use of the center channel—not all do—while the surrounds are appropriately used strictly for reverb. Given this best-case material, the Onkyo excelled in texture and listenability, with or without room correction. The unvarnished amp had a warmer tonal balance than the AccuEQ version, but both sounded, quite simply, great.

Live, Love, Larf & Loaf by French Frith Kaiser Thompson showed the most dramatic variation between the room-corrected and pure direct modes. With AccuEQ, lead vocals took a discernible step back, becoming thin and metallic, though guitars had a sharper attack and more zing. Without AccuEQ, images became bigger, warmer, and closer, though less defined, and drums took on a boxy coloration. A few of these distinctions may have arisen from variations in volume. I realized for the first time that in addition to timbral and imaging changes, AccuEQ was dropping the overall level noticeably. When I compensated for the volume difference, the distancing effect became less pronounced.

Return to Forever's *No Mystery*

● Onkyo's remote is simple, sensible, and nice looking.

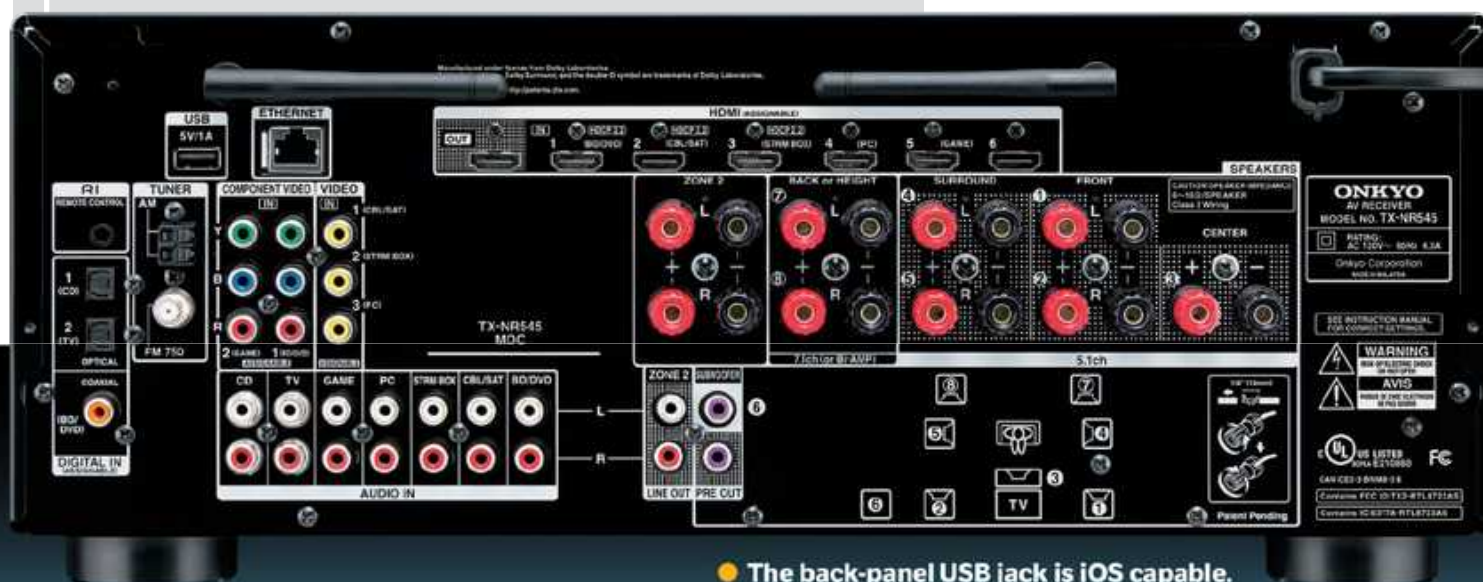


arrived on vinyl. Both live and on record, Chick Corea tends to favor bright incisive tones for his electronic keyboards and even his grand piano. However, whereas the direct mode warmed things up a bit, it also shut down the sub channel, depriving bass virtuoso Stanley Clarke of the low-frequency extension he deserves. And the boxy coloration noticeable with direct mode seemed to smear every facet of the rhythm section. AccuEQ finally won the day. I even upped the sub level a bit.

There is just no substitute for a musically adept amp, and in that respect, the Onkyo TX-NR545

starts with an excellent foundation. Onkyo, long a pioneer at the \$599 price point, then adds a state-of-the-art feature set. While I've come to doubt the desirability of Atmos 5.1.2—having heard noticeably better results from 5.1.4—Onkyo's Wi-Fi/AirPlay/Bluetooth triple threat and wealth of audio streaming options will make life better for post-disc listeners. Plus, you can always tap those extra channels for a second zone or a traditional 7.1-channel speaker layout if you prefer. You don't need to use all the bells and whistles to love this excellent-sounding receiver. ♦

Audio editor Mark Fleischmann is also the author of the annually updated book *Practical Home Theater* (quietriver-press.com).



● The back-panel USB jack is iOS capable.

There is just no substitute for a musically adept amp.

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Here and Now

By Mark Fleischmann

Sony STR-DN1060 A/V Receiver

PRICE \$600

LET ME SAY THIS UP FRONT: THE Sony STR-DN1060 doesn't do Dolby Atmos. Whether this is a serious omission in a seven-channel receiver today is debatable—but I'd say not. Most of the first-generation Atmos receivers have shortcomings of their own. For one thing, they lack the forthcoming DTS:X, the other flavor of object-oriented, height-enabled surround sound. More critically, seven-channel models can offer only Atmos 5.1.2, with two height channels in front or directly above the listener but none in back. That is at best a limited version of the Atmos experience because it doesn't create the full dome-shaped soundfield of 5.1.4.

What the STR-DN1060 does have is built-in Wi-Fi, AirPlay, and Bluetooth—Sony's now customary wireless triple threat. In fact, Sony pioneered what I call the wireless triple threat with the STR-DN1040 and -1050 at the prominent \$600 price point, leaving other manufacturers to play catch-up as they replaced their extra-cost dongles with baked-in wireless capability. Let's face it, Atmos fans: Wireless features have a far greater impact on the way music lovers access their digital music libraries than Atmos has on the way movie lovers enjoy surround sound. At least for the moment.

Atmos is an up-and-coming feature, no doubt about it. But Wi-Fi, AirPlay, and Bluetooth are here-and-now features. Let's dry our tears and move on.

Triple Wireless Times Two

The STR-DN1060 is one of two new receivers in Sony's regular (non-ES) receiver line. The other entry is the STR-DN860, which costs \$100 less, has a little less power, and slims down the connectivity options—omitting component video entirely.

AT A GLANCE

+ Plus

- Wi-Fi, AirPlay, Bluetooth
- MHL on front and rear
- Google Cast, Spotify Connect

— Minus

- Confusing A.F.D., HD-D.C.S. terminology

Remarkably, however, the step-down model does include the same triple wireless capability. Sony is determined not to let any wireless-savvy consumers slip through their fingers.

Not much has changed

ergonomically in this latest 10-series iteration, and that's a good thing, because Sony nailed ease-of-use issues some time ago. The front panel continues its asymmetrical aesthetic, with volume and source knobs both at right, complemented by sliver buttons that access listening modes and zone controls. The remote remains a marvel of organization, with buttons differentiated by size, shape, color, and placement and unhampered by arcane clutter.

The graphic user interface, with its distinctive tall vertical panels, is still one of the most attractive ones out there. The five panels are Watch, which organizes A/V audio inputs into a separate screen; Listen, which does the same for audio-only inputs; Custom Preset, with combo settings for Movie, Music, Party, and Night;

RATING

Sony STR-DN1060 A/V Receiver

Audio Performance ★★★★★

Video Performance ★★★★★

Features ★★★★★

Ergonomics ★★★★★

Value ★★★★★

Sound Effects, or listening modes; and Setup. There's also Google Cast, which allows you to play compatible music apps from your phone or tablet, and a SongPal remote app that allows operation of the receiver from an Android or iOS device.

Sony has omitted one of the three HDMI outputs present on the preceding model. However, there are still a half-dozen HDMI inputs, and they include both front- and back-panel MHL-compatible jacks for streaming from a smartphone. Another omission is AM radio, though there is still an antenna input for FM. (I'm always amazed when I unpack an AVR and find an AM antenna. What century is this?!)

In a departure from custom, Sony specifies power into 6 ohms, which results in a slightly higher power rating than the customary 8-ohm spec. That enables this model to be quoted at 100 watts with two channels driven. However, it's also useful information if your speakers have a nominal impedance of 6 ohms. For a more complete picture, see our Test Bench measurements.

Some additional wireless features enrich the triple threat. One is Bluetooth transmission, which allows



● The STR-DN1060 offers a USB port and an HDMI input on the front panel.

THE VERDICT

If you can do without Dolby Atmos in this seven-channel AVR, Sony's well-thought-out wireless functionality and sweet, golden sound are an unbeatable combination.

the AVR to send a signal to Bluetooth headphones for late-night listening. Yet another is Spotify Connect, which delivers the music-streaming service through a Wi-Fi-enabled app on your mobile device.

Sony's DCAC (Digital Cinema Auto Calibration) is said to be newly improved. To my ears—or at least, functioning in my room—Sony's room correction program has always seemed determined to do as little as possible. And really, isn't "do no harm" the first rule of audio medicine? This caution even extended to speaker level settings, which DCAC set at zero for all channels except for a half-decibel cut on my typically overactive left surround channel and a conservative 1.5-dB cut for the subwoofer (versus the 3- to 4-dB cut normally appropriate in my room). My SPL meter typically takes a slightly more activist role, but I left Sony's settings intact, except for a slight downward sub adjustment later in the game.

Associated equipment included five Paradigm Reference Studio 20 v.4 speakers, Paradigm Seismic 110 sub, Oppo BDP-83SE universal disc player, iPad 2 for AirPlay streaming, Micro Seiki BL-21 turntable, Shure

V15MxVR/N97XE cartridge, and Denon PRA-S10 stereo preamp serving as phono preamp. All movie demos were Blu-ray Discs with DTS-HD Master Audio soundtracks.

The Sony Sound

Having reviewed four previous generations of this receiver as well as numerous other Sony products, I've identified what I now think of as the Sony sound, and the STR-DN1060 hewed to it faithfully, with emphasis on warmth and surprisingly good dynamics for a receiver at this price. The golden tonal signature was apparent even at low volumes, though the receiver retained its confidence at higher ones, playing loud and clean with speakers of reasonable sensitivity. It's been a while since I've paid attention to Sony's HD-D.C.S. (Digital Cinema Sound) mode, so I often compared it with the no-frills, acronymically obscure A.F.D. (Auto Format Direct) setting. While playing music, I compared A.F.D. (with room correction but no other tricks) with the analog direct or PCM direct setting.



SONY STR-DN1060 A/V RECEIVER

PRICE: \$600

Sony • (877) 865-7669 • sony.com

Lone Survivor, with Mark Wahlberg in a real-life story about Navy SEALs fighting the Taliban, made the case for the Sony as an action-movie receiver. But then, music-savvy receivers usually excel with movies, too. Not only was there a master volume setting that reconciled low-voiced dialogue with aggressive effects, but there was a generous range of such settings, making it easy to pick one suitable for the time of day and settle into the movie. In the contest between HD-D.C.S. and A.F.D., what I came to think of as the *cinema magic setting* won for its heightening of full-soundfield effects, turning forest shootouts and the blat-blat-blat of helicopters into palpable sensations. It also thickened bass almost to excess and added a delay-related blur to voices, but the net effect was worth it. It was the difference between "this is an accurate rendering of the movie soundtrack—I'm OK with it" and "this is cool—I'm loving it."

Non-Stop has Liam Neeson as an Air Marshal fighting a diabolical foe in the not-so-friendly skies. This time, I had more issues with HD-D.C.S.'s bass treatment. It was full and plump, and too much so with male voices, which localized in the sub. But in a dramatic moment when the airliner descended from front to back, what the cinema mode did with the surround effect was priceless. I felt as if the plane had just flown into my chest cavity.

The last time I heard *A Hard Day's Night* was during my first play-through of the vinyl box set of *The Beatles in Mono*. But for this demo, I chose the 5.1-channel soundtrack of the movie from a Blu-ray rental. In any mode, the Sony delivered the much-loved voices with full tone color and didn't neglect the zing of the

guitars. But HD-D.C.S. paid unexpected musical dividends by pushing up the voices, overlaying a euphonic vinyl-like coloration to everything, and made the room seem larger. At first, all this seemed rather artificial—or "falsified," as my notes remind me—but I came to prefer it. The unvarnished soundtrack seemed bluntly oversimplified by comparison. Albeit clean. Very clean.

Chances and Snares

Well-recorded voices and period instruments recorded in a hard-walled space offer both opportunities and tripwires to an ambitious audio system. Do the voices sound human or mechanical? Do the viols sing or grate? Is the interaction with stone walls oppressive or liberating? I found out with the Renaissance composer John Ward's *Fantasies & Verse Anthems*, performed by the string consort Phantasm with the Choir of Magdalen College, Oxford, recorded in the college's chapel. The SACD's surround track is billed as 5.1, though the center channel is silent. With Sony's warmish amp, the viols didn't squeak; they gleamed attractively. Better still, though, were the voices. When the full chorus entered on "Praise the Lord, O my soul," all I could tell my notebook was "wow." The high-resolution medium and the euphonic amp gave the complex weave of chorus and individual soloists a glimmering beauty like the play of sunlight on a restless ocean. The chapel's subtle decay bonded tightly with voices and instruments, enriching them without drifting away from them.

Steely Dan's *Greatest Hits*, on vinyl, showed just how sophisticated Sony's DCAC has become. With most



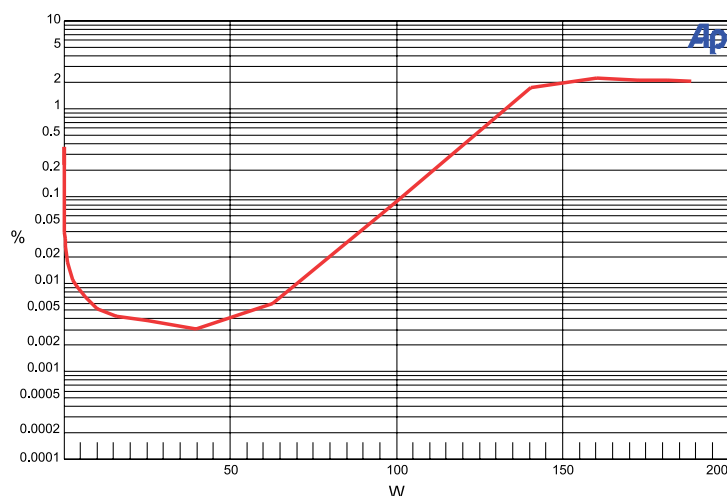
● The volume and source knobs are both at the right of the 17-inch-wide cabinet.



See soundandvision.com/TestBench for full lab results and technical definitions.

Test Bench

Sony STR-DN1060 A/V Receiver



AUDIO This graph shows the STR-DN1060's left channel, from CD input to speaker output with two channels driving 8-ohm loads. Measurements for THD+noise, crosstalk, signal-to-noise ratio, and analog/digital frequency response were all within expected performance parameters. Full details available at soundandvision.com.—MJP

	0.1% THD	1.0% THD
2 Channels Continuously Driven, 8-Ohm Loads	101.6 watts	132.9 watts
2 Channels Continuously Driven, 4-Ohm Loads	126.2 watts	173.2 watts
5 Channels Continuously Driven, 8-Ohm Loads	78.1 watts	97.1 watts
7 Channels Continuously Driven, 8-Ohm Loads	69.3 watts	85.0 watts

VIDEO The Sony passed all of our standard tests. However, in order for it to upconvert lower-resolution sources to 1080p on a 1080p set, the HDMI in 4K control (under the HDMI Setting menu) must be set to Auto. This is not intuitive, and if that control is set to Off, the receiver's output resolution will be the same as the input resolution.

THE Sony will also pass a 4K signal from a 4K source to a 4K set, though the above tests indicate its performance with a maximum output of 1080p. Into a 4K set the Sony can upconvert a lower-resolution source to 4K, but only if the HDMI Setting menu is set to Auto, as above. In the latter situation (upconverting a lower-resolution input, in this case 480i, to 4K and connected to a 4K set), it failed the 3:2 SD test but passed the others.—TJN

SPECS **Power Output:** 7 x 100 watts (6 ohms, 2 channels driven) • **Auto Setup/Room EQ:** DCAC (proprietary) • **Video Processing:** 4K passthrough, scaling (proprietary) • **Dimensions (WxHxD, Inches):** 17 x 6.88 x 13 • **Weight (Pounds):** 24 • **Video Inputs:** HDMI 2.0 (6) 1 with HDCP 2.2, component video (1), composite video (2) • **Audio Inputs:** Coaxial digital (1), optical digital (2), stereo analog (4) • **Additional:** Wi-Fi antenna (2), USB (1), Ethernet (1), IR remote (in/out), FM (1) • **Video Outputs:** HDMI 2.0 (2), component video (1), composite video (1) • **Audio Outputs:** Stereo analog (1), sub (2), 1/4" headphone (1)

● The back and front panels include MHL-compatible HDMI jacks.



room correction systems, there's a tradeoff between clarity and listening comfort. Improvements in imaging generally come with unwanted side effects: often a thinner tonal balance and additional listening fatigue. DCAC focused Donald Fagen's vocal image so dramatically that I had to remind myself I was listening to stereo with no center channel. Switching back and forth between room-corrected A.F.D. and the uncorrected analog direct mode, I could hear the lead vocal materializing and dematerializing—like magic! And yet, DCAC's do-no-harm strategy left the ingratiating tonal balance of the amp and analog playback system virtually untouched. Of course, in addition to greater focus, the room-corrected version added bass management, solidifying the peerless grooves of the Dan's formidable session drummers.

I spent my final evening (of several pleasant ones) with the receiver using its Wi-Fi-enabled AirPlay on an iPad. Yielding to the temptation to think less like a critic and more like a casual listener, I played several albums that I'd ripped from vinyl to MP3 at 192 kilobits per second, back in the days before I got serious about lossless encoding. Deodato's *Prelude* features the famous jazzification of Richard Strauss' *Also sprach Zarathustra*. To my surprise, the receiver's

voicing glossed over the crude upper mids that I'd expected the lossy encoding to impose on the brass and orchestral parts. I moved on to the Focus compilation *Ship of Memories*, which opens with four tracks from an ill-fated 1973 album that was never completed, in part because engineers were having trouble with the insubstantial sound of a new drum kit. No, the Sony didn't repair this audible flaw, but it did keep the cymbals in check just enough to let the percussion elements cohere, while allowing the rich textures of Jan Akkerman's moody guitar parts to shine through.

In a receiver market increasingly split between Atmos nine-channel 5.1.4 and Atmos seven-channel 5.1.2, the Sony STR-DN1060 wisely dodges the issue, simply providing top-notch basic surround sound and well-integrated triple-wireless features. For many users—especially those who would like to wait a few years, at least, for new products and content to animate the new surround technologies—that's plenty. This great-sounding receiver brilliantly leverages well-established audio standards and is built for pure pleasure. ♦

Audio editor Mark Fleischmann is also the author of the annually updated book *Practical Home Theater* (quiet-riverpress.com).



● Sony's remote has no flab in the form of unnecessary buttons.

The Sony brilliantly leverages well-established audio standards.

M U S I C A L B A S S

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Truth in Sound

Though my reviews of three competing \$600 AVRs in this issue wasn't technically handled as a product face-off, the editor asked me to add a few summary comments to help compare and contrast. These receivers were all good, but not in precisely the same ways.

Ease of use was one differentiator. Pioneer had the best control app, though Onkyo's couldn't be judged, not having been available at press time. Pioneer also got points for its network setup with iOS and Android devices and for AVNavigator5, its Web browser control. Sony had the most attractive graphic user interface.

Pioneer offered one more HDMI input than the others: six regular plus one MHL for smartphone streaming. Sony's six HDMI ins included two MHL, while Onkyo offered no MHL at all. Sony went out on a limb and omitted the component video interface, which might inconvenience owners of early-generation HDTVs, though we expect others to go the same way shortly. Sony also bumped AM radio; does anyone care?

All three supported HDCP 2.2 copy protection for Ultra HD signal sources. All supported UHD

passthrough. Onkyo was the only manufacturer to omit UHD upscaling, though it was also the only one to support HDR (high dynamic range) video.

Streaming services got variable support. Onkyo boasted several exclusives including SiriusXM Internet Radio, Deezer, Slacker, and TuneIn. Onkyo and Pioneer offered Pandora, and all supported Spotify. Sony's Bluetooth implementation included NFC, or near field control, which allows pairing by bumping devices.

Room correction schemes, when actually used, strongly affect sound quality. All three used homegrown systems. Of them, Sony's room correction brought the greatest benefit with the least harm. Pioneer's helped more often than not. Onkyo's helped sometimes but was less effective with the other two, which

have been through several generations.

When you're buying a receiver, you're buying a power amp. See our Test Bench measurements to find out how much power these products really muster.

Moving from objective to subjective judgment: To my ears, Sony was a cut above the other two, as its five-star Performance rating attested. Onkyo pleasantly surprised me by coming in a strong second. Pioneer didn't sound bad, but the VSX-1130 ranked a full star below last year's VSX-1124. Like vintages, receivers sometimes wax and wane from year to year, though whether this is due to deliberate decisions about voicing, availability of parts, other changes in design, or sample-to-sample variation will always be a mystery.—MF



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"I am giving both subs
a Top Pick for their
Performance..."

David Vaughn,
Sound & Vision.com,
Feb/March 2015

VTF-3 MK5 HP



PERFORMANCE ★★★★★
FEATURES ★★★★★
BUILD QUALITY ★★★★★
VALUE ★★★★★

"the only sub on our
list that netted five
stars across the board"

Bob Ankosko,
Sound & Vision.com,
Dec 2014

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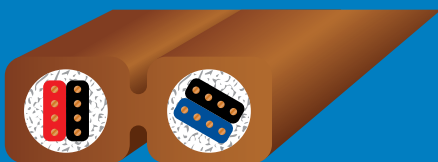
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Tangerine, Tangerine

By Mark Fleischmann

Klipsch Reference Premiere RP-150M Speaker System

PRICE \$2,399 as reviewed

KLIPSCH IS BUILT ON CONCEPTS so fundamental that they have transcended changes in audio fashion and even ownership. Chief among them is the concept of horn-loading, promulgated by the legendary Paul W. Klipsch (1904–2002) and marketed by him, his family, and their successors. It enables reasonably priced speakers to play louder, and to many listeners sound clearer, with less power. Klipsch speakers also look like no one else's, thanks to the tangerine/copper color of the woofers, another of the brand's 20th-century traditions.

Reelin' in the Years

Klipsch's new Reference Premiere series is the latest version of the long-standing Reference series, which has been through many iterations since 1999. One thing that sets Premiere apart is that models will come in both traditional passive and *powered* versions that will require only a source and no external amplification. The passive versions have arrived first and are reviewed here.

AT A GLANCE

+ Plus

- Titanium-dome tweeters in 90x90 Tractrix horns
- Tractrix-shaped rear ports
- Wireless sub option

— Minus

- Sacrifices some warmth for analytic detail
- Sub subdued

The passive Premiere models include three towers: the RP-280F (\$1,350/pair), RP-260F (\$1,050/pair), and RP-250F (\$800/pair). The two monitors are the RP-160M (\$600/pair) and RP-150M (\$500/pair). There are also three centers (RP-450C, \$650; RP-440C, \$550; and RP-250C, \$450) as well as two surrounds (RP-250S, \$450/each; RP-240S, \$325/each). Our system uses a pair of RP-150M monitors, the RP-250C center, and a pair of RP-250S surrounds, along with the R-110SW subwoofer (\$549) from Klipsch's current Reference line. The center, surround, and sub are also available in various home theater system packages.

The models under review all use the same horn-loaded 1-inch titanium-dome tweeter and 5.25-inch Cerametallic cone woofer in fiberboard enclosures with magnetically attached grilles. The monitor has one of each driver, the center has two of the woofers flanking the tweeter, and the

surround has two of each.

Klipsch refers to its tweeters as being mounted in a Hybrid Tractrix Horn. What makes it a hybrid? It's the combination of a round throat and square mouth. The 90 x 90-degree horn, though not entirely unprecedented, is wider than the 60 x 90-degree horn in some older Reference lines, and it uses a newly designed horn geometry. Widening the horn's horizontal dispersion angle is said to broaden the soundstage, improving imaging while maintaining the traditional strengths of a horn-loaded loudspeaker: greater power handling, dynamics, and efficiency. And make no mistake, these speakers are very efficient. The monitor's rated sensitivity of 93 decibels is decidedly on the high side of average; the center's 96 dB and surround's 95 dB are extremely high. Compare these numbers to our Test Bench measurements.

The tweeter dome lurking behind the horn has nearly its entire surface covered by a transparent phase plug. Klipsch says the plug has been "painstakingly redesigned, as it plays an important role in the performance and voicing of the tweeter."

The tangerine-hued Cerametallic woofer cones are made of anodized aluminum, both sides of which are covered with a thin ceramic layer. Claimed benefits include higher sensitivity, better power handling, and less mechanical breakup at high levels.

On the back of the monitor and center speakers, surprisingly enough, is what appears to be a second horn, though it functions as a port. It

RATING

Klipsch Reference Premiere RP-150M Speaker System

Performance ★★★★★
Build Quality ★★★★★
Value ★★★★★

"follows the Tractrix curvature equation" developed for Premiere's horns, in an attempt to produce less port noise than a conventional port. Klipsch says this improves bass response.

The monitor and center have a few unusual design flourishes. One is the beveling that surrounds three sides of their baffles. The monitor also sits on a beveled plinth. Klipsch says this "offers some low-frequency decoupling from the resting surface of the speaker," though its main purpose is cosmetic. Plastic-nut binding posts are diagonally staggered—an arrangement I haven't seen before—to make them easier to see and manipulate when you're crouched behind a speaker in a dim room. *[Ed. Note: Well, there's a good idea, particularly as it relates to threading bare wire ends through the post holes. Kudos to Klipsch; wonder why no one thought of this before.]*

The surround is a bipole design using what Klipsch calls "WDST," or Wide Dispersion Surround Technology. The idea is to combine image localization with flexibility in placement. Unlike the other speakers, this one has a sealed enclosure.

The R-110SW subwoofer continues the evocation of Led Zeppelin's "Tangerine" ("Tangerine, tangerine / Living reflection from a dream") with a 10-inch front-firing Cerametallic-coned woofer in another elegantly bevel-based enclosure. Pins, not magnets, attach the grille. The slot-shaped port is located at front-bottom to allow for in-cabinet or in-wall installation. The back panel includes a jack that accepts the optional Klipsch WA-2 wireless adapter (\$129), which functions with subs from Klipsch and stablemates Energy, Jamo, and Mirage. Other features, connectivity options, and the 200-watt RMS amp are minimal but adequate for the price.

Associated equipment included a Pioneer Elite VSX-53 A/V receiver,

● The RP-150M monitor sits on a beveled plinth.

● The Reference Premiere speakers sport Klipsch's signature orange Cerametallic drivers.

THE VERDICT

Klipsch's Reference Premiere achieves high resolution at a low price, though it can be too revealing for some content.

SPEAKER SYSTEM

KLIPSCH REFERENCE PREMIERE RP-150M SPEAKER SYSTEM

PRICE: \$2,399 (RP-150M, \$500 pr; RP-250C, \$450; RP-250S, \$450 ea; R-110SW, \$549)

Klipsch • (800) 554-7724 • klipsch.com

Oppo BDP-83SE universal disc player, Micro Seiki BL-21 turntable, Shure V15MxVR/N97XE cartridge, and the phono stage of a Denon PRA-S10 preamp. All movies were on Blu-ray Disc with DTS-HD Master Audio soundtracks.

Variations on a Theme

Like other Klipsch Reference speakers I've heard over the years, the Reference Premiere has an upfront sound that's rich in detail and variable in comfort level. Give it a great recording in a high-resolution format, and its strong treble absolutely sings, extracting every morsel of what you love about the music. Give it something edgy that requires a little more discretion, and it will tell more of the truth than you might prefer to hear. It will achieve impressive volume levels with most receivers, though warmer-toned amplification may suit its voicing better, and some content may sound more palatable at low-to-moderate levels as opposed to high. Bass character from both monitor and sub is on the lean side. The redesign of the horn has minimized beaminess, a potential weakness of horn-loaded speakers. I could move around the sofa without much noticeable variation in vocal timbre or deterioration of imaging.

The Hobbit: The Battle of the Five Armies has been in heavy

rotation at my house; Netflix will have to wait a while longer for return of the Blu-ray Disc. One scene that always gets my attention is the dragon Smaug's fire-breathing attack on a hapless mock-medieval village. The horned tweeters sent waves of seemingly full-band energy into the room, like a more scorching version of a pink noise tone, with extra emphasis on the upper midrange. In Smaug's death throes, I noticed Benedict Cumberbatch's natural vocal tone cutting through the aggressive vocal processing, an example of the center's ability to reveal detail. Strings followed that

trend by being more strongly outlined than usual, sharpening the attack of the entire string section, which is often bland in even the best soundstage recordings. When battle scenes went slow-mo and the soundtrack ratcheted down into sad-and-mournful territory, the system threw the quiet choral vocals into high relief, enhancing the tragic intent of the visuals. Sword clangs were also notably metallic in these quiet-reflection-amid-mayhem scenes. Surround effects were beautifully tailored into the soundfield, but those horn-loaded tweeters wouldn't permit any

sacrifice in texture or detail. On the whole, a bravura performance.

In *The Imitation Game*, with Cumberbatch swapping his Smaug persona for that of Alan Turing, the opening voiceover was stunning in its realism. The RP-250C made it almost hyper-real (not that I minded). A brief scene set in a rail station gave the system a chance to simulate an outdoor soundfield, and it did not disappoint. Blitz bombers over London were effectively imaged with a feeling of open space. The Klipsch speakers revealed the mixer's artful layering and panning, though the net effect was still evocative enough to give me a chill.

A Walk Among the Tombstones has the gunplay you'd expect from a Liam Neeson thriller. (By the way, though it's not like me to politicize our pages, let me say this just once: I'm more tolerant of guns and bombs in movies than in real life.) The ballistic effects in a cemetery shoot-out were hot—they crackled. Rainfall, one of my favorite movie effects, got a gentler but equally vivid treatment. Once again, I noticed a little enhanced detail in the orchestral parts wafting through the horns.

Front-Row Seat

Premiere was at its best during Tchaikovsky's Symphony No. 6 (*Pathétique*) with Claudio Abbado leading the Vienna Philharmonic on an LP from Deutsche Grammophon's golden age of analog



● The RP-150M and RP-250C center share the same driver complement.

TEST REPORT

● The R-110SW sub works with Klipsch's optional WA-2 wireless adapter.

RATING

Klipsch Reference R-110SW Subwoofer
 Performance ★★★★★
 Features ★★★★★
 Build Quality ★★★★★
 Value ★★★★★



See soundandvisionmag.com
 for full lab results and technical definitions



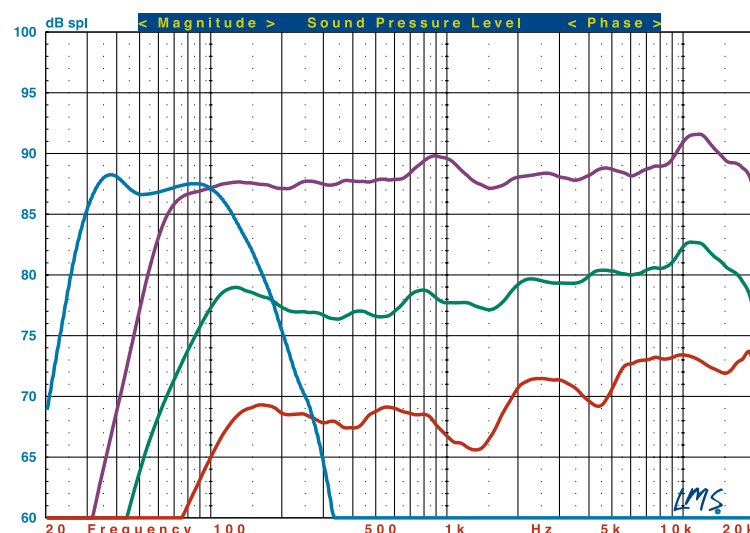
I got mixed but mostly positive results from *Magical Mystery Tour*, from the vinyl box set of *The Beatles in Mono*. The mono versions are deemed superior because the artists spent more time on them. So I guess Paul must have intended the title track to sound brash, and the Klipsch speakers weren't in the mood for revisionism. Like me, they much preferred the evocative psychedelia of John's "Strawberry Fields Forever," extracting maximum texture from the string and brass parts. Then came the equally evocative psychedelia of Paul's "Penny Lane," with Premiere giving maximum zing to the staccato piccolo trumpet solo and burnishing the lively instrumental textures to a brilliant sheen. I was surprised that the mono imaging wasn't more closed in. The dispersion of the speakers opened it up a little.

Perhaps I was throwing a curveball when I picked the CBS CD of the Rolling Stones' *Exile on Main St.* over the vinyl version. I knew it had a more prominent and less refined top end than the vinyl (though I hasten to add that there are many CD editions of this title that I haven't heard and this isn't intended as a general comment on format preference). Even so, "Rocks Off" had me turning down the volume, despite its sassy brass chart, and I couldn't play the rest of the album at the rambunctious volume I'd have preferred. Even the less top-heavy mixes—like "Sweet Virginia," with its more relaxed acoustic guitars—could be enjoyed at only moderate levels at best.

What the Klipsch Reference Premiere system does well, it does brilliantly. It extracts maximum information from movie soundtracks; the RP-250C center in particular is a dialogue-intelligibility champion, and the RP-250S surround helps construct a convincing soundfield. The RP-150M monitor also meshes satisfyingly with vinyl and the more refined forms of digital audio. However, it is a tough, analytical speaker, not a feel-good speaker that

Test Bench

Klipsch Reference Premiere RP-150M Speaker System



RP-150M (purple) +2.85/−0.85 dB, 200 Hz to 10 kHz; −3 dB @ 66 Hz, −6 dB @ 57 Hz; impedance minimum 4.10 ohms @ 205 Hz, phase angle −50.86° @ 111 Hz; sensitivity 88 dB, 500 Hz to 2 kHz.

RP-250C (green) +4.25/−1.62 dB, 200 Hz to 10 kHz; −3 dB @ 86 Hz, −6 dB @ 72 Hz; impedance minimum 4.01 ohms @ 218 Hz, phase angle −37.21° @ 129 Hz; sensitivity 91 dB, 500 Hz to 2 kHz.

RP-250S (red) +4.46/−3.36 dB, 200 Hz to 10 kHz; −3 dB @ 106 Hz, −6 dB @ 90 Hz; impedance minimum 3.98 ohms @ 218 Hz, phase angle −51.81° @ 120 Hz; sensitivity 90 dB, 500 Hz to 2 kHz.

R-110SW (blue) Close-miked response, normalized to level @ 80 Hz: lower −3 dB @ 29 Hz, −6 dB @ 26 Hz; upper −3 dB @ 130 Hz with Low-Pass control set to maximum.—MJP

SPECS **RP-150M:** 5.25 in Cerametallic-cone woofer, 1 in titanium-dome horn-loaded tweeter; 7.67 x 14.57 x 10.67 in (WxHxD); 14.7 lb • **RP-250C:** 5.25 in Cerametallic-cone woofer (2), 1 in titanium-dome horn-loaded tweeter; 18.5 x 6.81 x 9.96 in (WxHxD); 18.4 lb • **RP-250S:** 5.25 in Cerametallic-cone woofer (2), 1 in titanium-dome horn-loaded tweeter (2); 12 x 13.5 x 7.92 (WxHxD); 15.7 lb • **R-110SW:** 10 in Cerametallic-cone woofer; 200 watts RMS, 450 watts peak; vented enclosure; line-level stereo and LFE in, wireless port; 14.75 x 16.3 x 15.8 in (WxHxD); 39.25 lb

recording. From the opening seconds of the first movement, the system's low-level resolution was thrillingly obvious. In fact, the system's resolution invigorated this performance at every volume level, giving the string section a sinuous beauty, bringing out the distinctive tone colors of the woodwinds and adding zest to the brass. In this selection, at least, nothing was unduly hot or fatiguing. Beauty and refinement were everywhere. The speakers avoided any noticeable timbre shift as I moved around the room. When I left the sweet spot, the only thing lost was spatial resolution (but you could say that about most speakers). The only unsatisfactory thing was the depiction of basses, kettledrums, and (later on) drums in general. Turning up the sub volume didn't help. The sub just wasn't as much of an achiever as the monitor, and the monitor's bass response was modest to begin with.



● The tweeters are mounted in a hybrid horn.

makes everything sound pleasant. It can be grating with bright mixes and more debased forms of digital audio, so those listeners addicted to lossy files and streaming should exercise caution. If you're resolution-starved and have a nagging feeling that your current system just isn't telling you

enough, Premiere may be the right medicine. ♦

Audio editor Mark Fleischmann is also the author of the annually updated book *Practical Home Theater* (quietriverpress.com).

This system extracts the maximum information from movie soundtracks.

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4K for All

By Thomas J. Norton

RATING

Vizio M65-C1 LCD Ultra HDTV

Performance ★★★★★

Features ★★★★★

Ergonomics ★★★★★

Value ★★★★★

Vizio M65-C1 LCD Ultra HDTV

PRICE \$1,500

VIZIO IS THE VALUE LEADER IN A tough HDTV market. While the safest route for them to maintain their commanding share would have been to change their 1080p E series and M series models just enough for a “new for 2015” promotional campaign, Vizio chose the long view: The E series remains the company’s 1080p budget line, but the M series is now 4K, while still priced well below most of the competition.

Exploring the M65-C1

Vizio has launched a flood of M series 4K models for 2015: nine in all, ranging from 43 to 80 inches. Their pricing is aggressive; even the 80-incher has an MSRP of just \$4,000. But our subject here is the 65-inch model, the M65-C1.

There’s more to Ultra HD than 4K (which has four times the number of pixels as a 1080p set). The format’s other important features include enhanced color (a so-called P3 color gamut at a minimum plus a 10-bit color depth) and high dynamic range (HDR). The only UHD feature in Vizio’s M series (and the slightly pricier P series held over from 2014) is 4K resolution. But in that, it’s in good company; most of today’s 4K sets lack these advanced features. (Vizio’s upcoming Reference line is expected to include them.)

The M65-C1 offers a generous complement of other features, however, including full-array LED backlighting. As with nearly all of the other M series models, it has 32 locally dimmed zones. (The lone exception is the M43-C1, with 28.) This isn’t as many zones as found in pricier local dimmers, including Vizio’s own still-unreleased Reference models. But, when done correctly, full-array backlighting can be, in our experience, superior to the more common LED edge lighting. The set’s

AT A GLANCE

+ Plus

- Excellent 4K upconversion
- Good blacks
- Solid value

- Minus

- Odd gamma
- Clips above white and below black
- No enhanced-color or HDR future-proofing

native refresh rate is 120 hertz with backlight scanning, for an effective rate of 240 Hz. The Active LED Zones feature was used for all of the viewing and measurements here, unless noted otherwise.

The Vizio offers several Picture Modes. The Calibrated and Calibrated Dark selections are said to be set up for Rec. 709, the current HD color gamut standard. The M65-C1 also includes a complete set of color calibration controls, including 2-step and 11-step white balance and a full color management system (CMS) with Hue, Saturation, and Brightness controls for each of the primary and secondary colors. In addition, you can select one of several available fixed gamma settings.

Other controls include Black Detail, Reduce Judder, and Reduce Motion Blur. Using the last one alone reduces motion blur a bit, without any obvious soap-opera effect. A separate Clear Action control increases the number of flashes per refresh rate, also in an attempt at smoother motion. (It did little in my testing, apart from subtly dimming the picture.) There are two types of noise reduction and a Game Low Latency control (the latter not tested). Some of these controls may be useful in certain situations, but for this review I left them all off.

There are five HDMI inputs, one of

them with HDMI 2.0 (support for UHD at 60 Hz) together with HDCP 2.2. The other four are HDMI 1.4, half of those with HDCP 2.2 and the others with HDCP 2.0. The HDMI 5 input is said to support a “High Velocity Mode” that accepts 1080p signals at 120 Hz. The set incorporates the HEVC (h.265) codec for UHD sources.

Vizio is proud of their new, intuitive user interface, which allows smooth access to a wide range of apps and Internet sites, including streaming in 4K (limited though it still is) from Netflix, Amazon Instant Video, and UltraFlix. It also includes, of course, the usual capability to stream music, photos, and videos over your home network.

The supplied remote has the set’s controls on the front and a keyboard on the back. It’s adequate, but the front lacks backlighting, and the keyboard didn’t work consistently.

There’s no manual firmware update option, but the TV performs updates automatically with a wired or wireless Internet connection.

Setup

The M65-C1 is just a bit over 57 inches wide. The set’s “stand” consists of two legs spaced just under 50 inches apart. This is sturdier than the usual type of stand, but for tabletop use, you’ll need a surface at least 54 inches wide, allowing for a safety margin of about 2 inches beyond each leg.

Out of the box, the so-called Calibrated and Calibrated Dark Picture Modes looked reasonably good. I eventually calibrated the TV in the Calibrated Picture Mode, readjusted as needed for a darkened room.

The basic Picture controls can be adjusted separately by inputs and Picture Modes. But in the Calibrated, Calibrated Dark, and Standard Picture Modes, the Color Calibration controls can’t be adjusted separately, either by input or by Picture Mode for a given Color Temperature setting. Only the Normal Color Temperature setting, however, is near enough to accurate



● The Vizio’s screen sports a de rigueur thin bezel.

THE VERDICT

As with most current 4K sets, the Vizio M65-C1 delivers only the 4K portion of the full Ultra HD toy box. It also has a few nagging technical issues. But for the most part, these fade into the background of the set's compelling viewing experience.

HDTV

VIZIO M65-C1 LCD ULTRA HDTV

PRICE: \$1,500

Vizio • (888) 849-4623 • vizio.com

to enable a good calibration. (The others are Cool and Computer.)

After hours of fiddling, I found that the 11-point controls proved useful mainly to tweak the 2-point results at the extreme top end of the Brightness range (90 and 100 percent). But after getting good measured results from using the color management system (located in the Color Calibration/Color Tuner menu), I noticed excessive noise (or perhaps, just as annoying, an emphasis of film grain) on my Blu-ray of *Jurassic Park*. In addition, in that film's first shot of a "live" dinosaur, the clouds behind it looked unnaturally etched. While I didn't experience these issues on any other source material (nor on the recently reviewed [Samsung UN65JS-9500FXZA](#), with its own CMS engaged), I ultimately left the Vizio's CMS controls in their off position (all zeros). Fortunately, the default color gamut proved more than acceptable without them.

Performance

The TV's Toslink (digital optical) output would produce 5.1-channel audio only with a Dolby Digital

source and the Audio menu set for a Bitstream output. In PCM, or with DTS-HD Master Audio in either setting, the output was limited to two-channel PCM. The owner manual implies that setting the Digital Audio setting to Bitstream and the internal speakers to Off should allow passthrough of a DTS multichannel bitstream, but I was never able to get this to work with my Oppo BDP-105 Blu-ray player. While the set's internal audio wasn't exceptional, it was better than what I've heard from most other flat panels. The sound was reasonably full-bodied, though prone to buzzing at some frequencies if the TV was played too loudly. The midrange was colored, but I was able to quickly tune that out as long as I didn't compare it directly with a superior system.

Apart from the 4K section below, all of the source material mentioned here was 1080p on Blu-ray. The upconversion to 3840 x 2160 was performed by the Vizio, with excellent resolution and no visible artifacts.

The M65-C1 performed reasonably well, though not perfectly, on our standard video tests. But it did clip above video white and below video

black. Technically, there are 255 discrete brightness levels in our digital imaging system. In consumer video, we use the range from 16 to 235, with the rest reserved for headroom and "foot room." The source should fill the 16-to-235 bucket, though no more. That said, material may occasionally exceed this standard, either by accident or by the desire of some content producers for "bigger, faster, more teeth." (Can you guess that I just saw *Jurassic World*?) A display device should therefore accommodate the full 0-to-255 range; the 16-to-235 limitation applies only to the video source material.

The Vizio was a bit slow to lock onto 3:2 HD pulldown, was borderline on 3:2 SD pulldown, and slightly rolled off the top burst of the vertical chroma resolution. But none of these was significant enough to result in a failing grade.

Off-axis performance was typical of most LCD displays. As I moved much beyond 20 to 25 degrees off center, the image became progressively more faded and desaturated.

The gamma curves weren't particularly uniform; the most significant error in all settings was a consistently high gamma above the 60-percent brightness level (see the Test Bench). I often felt the need to change the gamma setting, depending on the source material. Most of the time, 2.1 or 2.2 worked best, but there were times when 2.0 or even 2.4 looked better.

Another problem turned up first in chapter 7 of *The Lion King*. As Mufasa lectures Simba on taking risks, his head moves against a twilight sky. This caused brief but severe brightness pumping. In the TV mini-series *Titanic: Blood and Steel* (viewed on Blu-ray), I noticed this again, in two scenes (one of them on disc three, chapter 11, at 7:45). With a single lamp in the background, obvious brightness pumping occurred when a character in the foreground intermittently blocked the lamp. The problem ceased when the Active LED Zones were turned off. My guess is that this is somehow related to the set's relatively limited number of local dimming zones, or to the programming that controls the

operation of those zones. But on most material, this artifact was rare, fleeting, and easy to ignore. I watched at least eight hours of the *Titanic* mini-series, which, being a period piece, is full of scenes with similarly difficult lighting. Only on those two occasions did I distinctly see the local dimming act up in this way, for a total time of roughly five seconds. Distracting, yes, but not enough to tempt me to turn the local dimming off.

Even while the Vizio had some nagging technical issues, normal program material told a different, far more positive story. Although the TV didn't drop to total black on fade-outs in a fully darkened room (as pricier local dimmers often can do), it came very close—on a par with some of the last, best plasmas of the recent past. Among the black-level challenges I threw at the M65-C1 were episodes from the recent season of *Game of Thrones* (on cable) and from the 2009–2011 series *Stargate Universe* (on both Blu-ray and DVD). The Vizio had no trouble reproducing the latter's generally gloomy setting, 90 percent of which takes place in the dark corridors and darker corners of an ancient starship. The TV also excelled in star fields from this and other material, as well as in the inky black bars it produced on widescreen films.

Nor did the Vizio's resolution, including its upconversion to 4K, give me any reason to complain. Its color was also good, except for greens that were just a little too oversaturated—and couldn't be reined in, even before I gave up on the CMS. And its screen uniformity, while not plasma perfect, was comparable to that of the best LCD sets I've tested.

4K Performance

On a 4K horizontal frequency sweep pattern, the Vizio emphasized discrete frequencies at the extreme top end—even with Sharpness set to zero. But with Sharpness at 20 (my preferred setting with normal source material), this appeared to have little or no effect on a more conventional



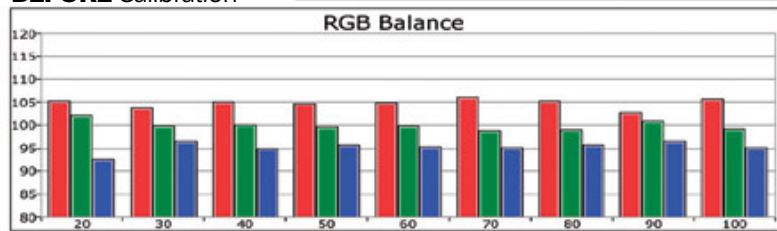
● **The M65-C1's full-array backlighting features 32 locally dimmed zones.**



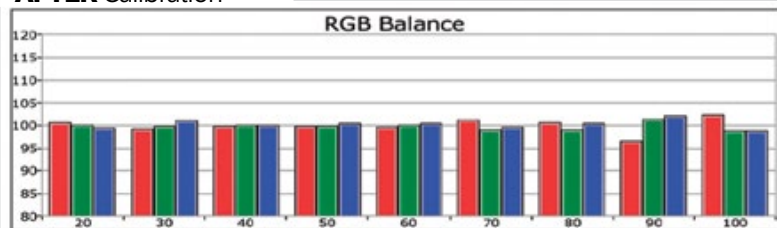
Test Bench

Vizio M65-C1 LCD Ultra HDTV

BEFORE Calibration



AFTER Calibration



THE measurements here were made using CalMan measurement software from SpectraCal, together with Photo Research PR-650 and Klein K-10A color meters, and the AVFoundry VideoForge 2K and DVDO 4K pattern generators.

FULL-ON/FULL-OFF Contrast Ratio: 46,857:1

FOR the picture settings used in this review, go to soundandvision.com.

UNLIKE with most full-array local dimming, with a full black test pattern on the screen the Vizio's LED lighting doesn't shut down completely but rather simply goes very (but measurably) dark. At a peak white light output of 32.8 foot-lamberts, the black measured 0.0007 ft-L (this varied a bit from reading to reading, but most of my several readings clustered around 0.0007). Turning the Active LED Zones off with no other control changes increased the peak white level to 42.1 and the black level to 0.0099, for a full-on/full-off contrast ratio of 4,253:1.

IN the Calibrated Dark default setting (but adjusted for a peak white level of 36 ft-L), the pre-calibration grayscale Delta E values averaged 3.5, with a low of 1.33 at 30% and a high of 6.17 at 100%. After calibration (now in a significantly modified Calibrated mode with the peak white level changed to a more dark-room-tolerable 31.3 ft-L), and using mainly the 2-point white balance controls and only the 90% and 100% 11-point controls for a final tweak, the average Delta E dropped to 1.1, with a low of 0.1 at 20% and a high of 3.23 at 90%.

DELTA E is a figure of merit that indicates how closely a display adheres to the Rec. 709 HD color standard. Experts generally agree that at levels below 3 to 4, the result is visibly indistinguishable from perfect color tracking. A Delta E may be used to characterize either white balance (grayscale), as above, or color, as below.

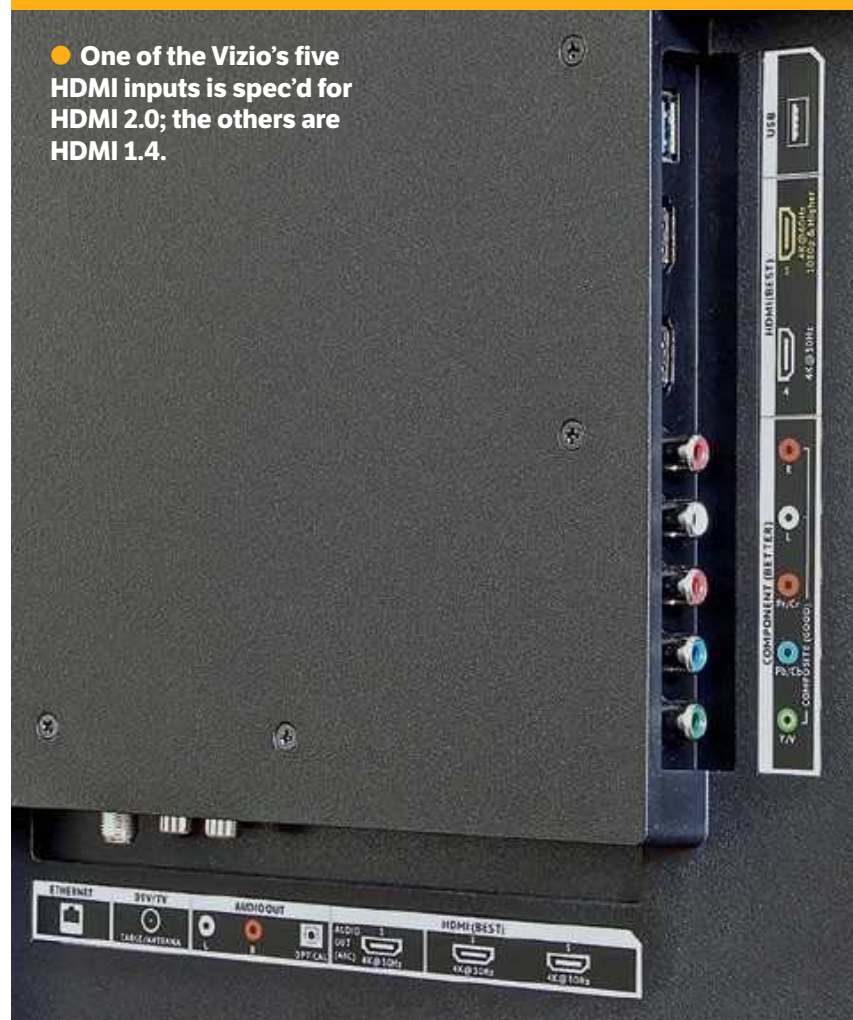
NONE of the color management system controls were ultimately used to calibrate the set's final color gamut, as discussed in the main review. Nevertheless, after the white balance calibration, the color Delta E averaged a respectable 1.63. Blue, as is typical, was the main offender, with a Delta E of 3.31.

WITH the Gamma control set to 2.2, the set's gamma averaged 2.4. But it wasn't particularly uniform, measuring 2.34 at 20%, 2.2 at 60%, and increasing above that to 2.48 at 70% and 2.97 at 100%. Changing the Gamma setting to 2.1 dropped the average to 2.32, but with a similar rise at the top end. The higher the gamma number at a specific brightness level, the darker the picture will be at that specific level.—TJN

SPECS

Dimensions (WxHxD, Inches): 57.4 x 32.9 x 2.6 (without stand); 57.4 x 35.4 x 11.2 (with stand) • **Weight (Pounds):** 60.8 (without stand); 61.8 (with stand) • **Video Inputs:** HDMI 1.4b (4), HDMI 2.0 (1), component video (1, shared), composite video (1 shared), RF (antenna) • **Audio Inputs:** Stereo analog • **Other:** USB, Ethernet, Audio Return Channel on HDMI 1 (with compatible AVR) • **Audio Outputs:** Optical digital (Toslink), audio analog (minijack)

● One of the Vizio's five HDMI inputs is spec'd for HDMI 2.0; the others are HDMI 1.4.



4K sharpness pattern or the real-world 4K sources available to us.

However, such Ultra HD program material is still in very short supply. For my testing, it was limited to a few short subjects and the movie *Chappie*, all on Sony's 4K server.

For this test, I moved the Vizio a little closer to my viewing position,

though still about 9 feet away. While conventional 4K wisdom suggests that it should be even closer—perhaps as close as 5 to 6 feet for a 65-inch set—this is likely to be uncomfortably close for many viewers, even without considering the narrow optimum seating width for an LCD—an area that shrinks as you move closer to the set. In addition, the sound from speakers with multiple drivers may not coalesce properly to perform at its best at short range. The main exceptions will be speakers with coincident drivers (such as some designs from KEF, Tannoy, and Pioneer), or small two-way bookshelf systems where the woofer and tweeter are mounted very close together.

For some undetermined reason, the Sony server didn't provide sound with the Vizio, though it did with the Samsung UN65JS9500FXZA. On the video side, the short subjects from the server were mostly unimpressive and in some ways looked worse than similar (though not identical) 1080p material on Blu-ray. *Chappie* looked far better, so I set up a comparison with two identically calibrated inputs, one



● The dual-sided remote has a convenient keyboard.

● The Vizio's stand is unusually wide, at about 50 inches.



playing the Blu-ray of the film, the other the 4K file. The upscaled 1080p source appeared a shade less smoothly fluid than the true 4K source. This was extremely subtle, however, and neither version looked clearly more detailed than the other. While this confirms the Vizio's good 4K upconversion, it also reinforces my previous 4K experiences. That is, unless you have a very big screen (something like 80 inches or larger) or are willing to sit closer than most viewers prefer, the most dramatic benefits of Ultra HD will likely come from sources with upgraded color and higher dynamic range—neither of which are yet widely available (and neither of which most current 4K sets can make use of, including the Vizio). That doesn't mean, of course, that a 4K set with good upconversion can't produce an impressive picture from both true 4K material and upconverted 1080p. The Vizio can—and does.

Comparisons

With the recently reviewed high-end Samsung JS9500 TV still on hand, a comparison with the M65-C1 proved

irresistible, in part due to their wide price differential: \$4,500 street price for the Samsung as of late July versus \$1,500 for the Vizio. Since I currently lack a one-in/two-out 4K splitter, however, all comparisons here were performed with 1080p Blu-ray material using the two outputs on my Oppo BDP-105D player and upconverted by each set (not by the Oppo).

Comparing two sets side-by-side isn't as simple as it might seem. Even with both sets calibrated, such a comparison often requires *slight* changes to one or the other in its technically optimum Brightness, Contrast, Backlighting, and Gamma settings to get the two TVs as near to each other as possible. But when carefully tweaked, the Vizio and the Samsung could look remarkably similar, despite their considerable price difference. The Samsung's greens were more natural, though the differences weren't apparent on all material and were subtle when they were noticeable. Ditto with fleshtones.

On some material, the Vizio's blacks on dark scenes actually pulled

ahead, but in general (including fades to full-screen black) the Samsung won the black-level race by a nose. It also had sharper resolution, but again the differences weren't always easy to spot. The Samsung's local dimming, however, never misbehaved.

The most obvious differences between the two sets came from their gamma curves. Neither one followed a gamma curve precisely, but the Vizio deviated the most. Because it had a higher than optimum gamma at the top end (a higher gamma produces a darker result), its images sometimes appeared more saturated than the Samsung's. This wasn't always troubling, by any means. On some scenes, it actually enhanced the experience. But it wasn't accurate, and as noted earlier, I often fiddled with the gamma setting on the Vizio to get the best subjective result, whereas I rarely felt any need to do so on the Samsung. (As noted in my Samsung review, however, I sometimes wished for one more downward step in its gamma options.)

The Samsung also offers readiness for advanced color and high dynamic

range, plus state-of-the-art 3D—but all at a price.

Conclusions

The Vizio deviated from ideal technical performance in ways that may bother the fussy videophile. And like most other current Ultra HD sets, it lacks the capability to respond to the advanced color and high dynamic range we expect to see (eventually) from UHD program sources.

When properly set up, however, the Vizio *can* produce a visually compelling picture. I watched it for dozens of hours without itching to return to one of the two high-end sets I had on hand: the backlit Samsung (LCD) and the Panasonic TC-65ZT60 (plasma). Those are better sets in many ways, to be sure. But in the qualities that matter most to the average buyer—a big picture and an impressive viewing experience—the Vizio M65-C1 delivers at a less wallet-flattening sacrifice than most of its competition. ♦



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The Quest Continues

By Mark Fleischmann

Bryston Mini A Speaker System

PRICE \$4,785

SO MANY AUDIO PRODUCTS start as marketing necessities. But how many start as personal quests? When Bryston's James Tanner wanted to design a one-off "ultimate loudspeaker" for his own reference system, the resulting Mini T floorstanding tower impressed his colleagues so much that it squirmed its way into the upper-echelon marketing channels usually reserved for Bryston's formidable preamps and amps (which, incidentally, include surround-friendly three-, five-, and eight-channel models). This left turn was hardly a surprise coming from Bryston, a company whose early movers and shakers were involved in medical equipment and NASA before moving into high-end audio. Daniel

AT A GLANCE

+ Plus

- Coordinated on- and off-axis response
- Custom drivers
- Strong dual-10-inch sub

- Minus

- Center not fully timbre-matched
- Not much to look at
- Sub crossover limited to two settings

Kumin reviewed a \$9,000 system based on the Mini T, using the Mini A as surround speakers, in October 2014 (available at soundandvision.com).

com). The more affordable system reviewed here gives a more prominent role to the Mini A in all four corners of the room, and it adds the new AC-1 Micro center and the weighty Model A Sub dual side-firing subwoofer.

Maple Leaf Rag

In addition to the Mini A monitor (\$1,200/pair), the Bryston A series includes the floorstanding A1 (\$3,490/pair), A2 (\$2,790/pair), and A3 (\$2,390/pair) as well as two centers, the big AC-1 Mini (\$1,250) and smaller AC-1 Micro (\$490). They are all made in Canada by Axiom, whose VP100 v4 center bears a passing resemblance to the AC-1 Micro, though the AC-1 drivers are custom designed for Bryston. The Mini A monitor and Model A Sub are said to be unique to the Bryston line. Finish options include black ash, natural cherry, darker Boston cherry,

RATING

Bryston Mini A Speaker System
Performance ★★★★★

Build Quality ★★★★★

Value ★★★★★

and (at additional cost) various custom veneers. All the speakers, including the subwoofer, are covered by Bryston's 20-year warranty.

At first glance, these speakers don't look especially fancy. Look closer, and you may notice their trapezoidal footprint, which eliminates parallel side walls and therefore minimizes internal sound-bloating standing waves. Inside the well-braced fiberboard enclosures are custom drivers utilizing die-cast aluminum baskets with what Bryston calls "substantial" magnets.

The Mini A is a three-way design with a 1-inch titanium-dome tweeter, 3-inch midrange, and 6.5-inch woofer, the latter two employing aluminum cones. The tweeter's subtle waveguide is one visible manifestation of Bryston's institutional goal of coordinating on- and off-axis sound and minimizing the speaker's interaction with the room. The bass extension is rated down to 60 hertz (-3 decibels); see our Test Bench measurements for more information. Although our review of the Mini T remarked on its hunger for power, rated sensitivity for the Mini A, at 87 dB, is merely on the low side of average. I found the output level to be acceptable in my listening room with a midpriced receiver. Magnetically attached grilles are on the front, and plastic-nut binding posts are on the back.



● Bryston offers the A Series speakers with a variety of optional custom wood veneers.

THE VERDICT

The Bryston Mini A offers refined performance and—though it's not obvious to the naked eye—serious build quality at a moderate price.

SPEAKER SYSTEM

BRYSTON MINI A SPEAKER SYSTEM

PRICE: \$4,785 (Mini A, \$1,200 pr; AC-1 Micro, \$490; Model A Sub, \$1,895)

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The AC-1 Micro center is a two-way design in an asymmetrical trapezoidal enclosure, which helps with positioning. Place the side with the square corners down, it aims straight ahead; flip it over, it aims upward. Clever! Drivers include two 5.25-inch woofers flanking the tweeter. The monitor and sub have fluted ports designed to minimize port turbulence, while the center's enclosure is sealed.

The Model A Sub has two side-firing 10-inch aluminum-cone woofers in a 48-pound enclosure (which is pretty heavy for a sub this size), backed by a substantial 400-watt RMS amp. In lieu of the typical continuous crossover dial, a toggle switch selects 80- or 150-Hz crossovers; I used the former, but the latter would be better for smaller satellite speakers. Unfortunately, you can't always bypass this internal low-pass crossover, and there is no LFE input. The usual on/off/standby switch gives way to 12-volt trigger in and out jacks. I've lost track of the number of times I've rated a sub lower than the rest of an otherwise fine speaker system, but Bryston takes their subs seriously. This one accounts for nearly 40 percent of the system price. To develop it, Bryston lugged it to the top of a 90-foot measuring tower that uses the great outdoors as an anechoic (non-echoing) measurement environment. Why go to all that trouble? Because, according to Bryston, the accuracy of indoor anechoic chambers is limited below 85 Hz. These people will stop at nothing.

Associated equipment included a Pioneer Elite VSX-53 A/V receiver, which had enough headroom to run

the Brystons, though it had to work just a little harder than usual. An Oppo BDP-83SE universal disc player was the source component. All movies were on Blu-ray Disc.

Slowly the Veil Lifts

Some speakers make a first impression that proves unshakable. Others yield their mysteries more slowly, and the Brystons were in that category. Frankly, at first they left me disoriented. I liked their power handling, firm bottom end, and neat dovetailing at the sub crossover. I also appreciated the fatigue-free ease they gave to even the most aggressive movie soundtrack, and the way images seamlessly panned in any direction but up (since this wasn't a Dolby Atmos system). But I wondered if their top end was concealing the truth about the soundtracks of the various forgettable thrillers I used for break-in. It took a while to resolve the doubt that gnawed at me during the movie demos. Only when I moved on to music did I realize how, well, *musical* the Mini A's top end was, and how realistic its imaging was. Suddenly, I felt it was telling me a lot of what I needed to hear.

The Hobbit: The Battle of the Five Armies (DTS-HD Master Audio) unleashed a procession of loud quasi-medieval military clashes. A memorable early scene in which the dragon Smaug attacks a village like a flying flamethrower was remarkably smooth, allowing me to concentrate on thundering trajectories of destruction without flinching at the sheer volume of the onslaught. As solid and controlled as the bottom end was, the overall presentation

wasn't a lively one. Voices seemed veiled. Everything fit together well, but there was "no sparkle," I complained to my notebook. Only when Billy Boyd sang his lonesome tune over the end credits did I get an intimation of the human subtlety and tone color that the Brystons might be capable of.

Left Behind (DTS-HD Master Audio) is a Nicolas Cage airplane action-drama with more than its fair portion of weirdness. I should probably avoid serving up spoilers, so let's just say that at least two different kinds of vehicle succumb to the force of gravity. The sub accommodated these high-decibel low-frequency events with aplomb.

The Brystons' mix of punishing material culminated with *The Expendables 3* (Dolby Digital). Most movies with helicopter surround effects depict the copter as a monophonic image whirling around the soundfield. But here, the viewpoint shifted to in-copter surround effects—this movie's sonic highlight, and a sign of good power handling. As expected by now, the Brystons delivered gunfire and military explosions more palatably than most speaker systems. Still, something that had bugged me throughout all the movies—lackluster (albeit intelligible) vocal timbre—finally moved me to run the receiver's test tones again to check timbre matching between the AC-1 Micro



center and Mini A monitor. Usually, a center that is poorly timbre-matched to the satellites will have a different overall tonal balance than the left and right speakers, as I found to be the case with this system in my listening room. Speaking voices and other effects centered in the AC-1 Micro seemed a little bland compared with effects and singing voices carried by the Mini A monitors in the L/R front and surround positions.

There's the Sparkle

And so it was no surprise that two Mini A speakers delivering music showed the Bryston system in a different light. "There's the sparkle!" I wrote as *Kissin' Plays Lizst* rotated in the universal player. Evgeny Kissin's fluid playing brought out loads of tone color in what I'd erroneously pegged as veiled speakers. If that was the sauce, the rhythmic incisiveness of speakers and sub was the meat, bringing out all the small dynamic nuances. Moving on to the Brahms Serenade No. 1, with



● The AC-1 Micro center can be placed on its flat or angled edge to aim forward or up.

TEST REPORT

● The Model A Sub has two 10-inch side-firing woofers.

RATING

Bryston Model A Subwoofer

Performance ★★★★★

Features ★★★★★

Build Quality ★★★★★

Value ★★★★★



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for full lab results and technical definitions



Michael Tilson Thomas leading the London Symphony Orchestra, I heard a beautiful balance of frequencies and spatial information that approximated a good concert hall. Carlos Kleiber's Deutsche Grammophon

recording of Beethoven's Symphony No. 5 with the Vienna Philharmonic—the first movement, fate knocking at the door—confirmed my assessment of the solid bottom end, with its sawing

basses and pounding kettledrums. And the overall feel was perfectly suitable for the rambunctious volumes the Fifth demands.

Robyn Hitchcock's *The Man Upstairs* hews to the spare instrumentation of stripped-down albums like *I Often Dream of Trains*, adding strategic cover versions of Bryan Ferry, the Doors, the Norwegian band I Was a King, and others. Brilliantly stark production by the great Joe Boyd frames the voice candidly, rather than processing it into oblivion—and the Mini A's painstaking tonal and spatial realism stepped out of the way and delivered the music with what must have been the intended purity. Hitchcock has a slightly nasal and deeply resonant voice, which might trip up a speaker with nasal or chest emphasis. But the Mini A avoided these obvious tripwires and brought me closer

to the emotional heart of this album.

As I so often do, I turned to my first-generation CD of the Beatles' *Abbey Road* for a quick Ringo check on "Come Together" and "The End." (Have drums ever been better recorded on a rock record?) I liked the Bryston treatment so much, however, that I had to hear everything in between. Played full-range, the Mini A had enough bass to keep bass lines in one piece, capture the pitch and impact of toms, and even manage a decent bass-drum thunk. Switching the sub back on firmed up the bass drum and redistributed frequencies just below the crossover a tad differently. But the system was equally listenable either way, making the Mini A one of the few monitors I've reviewed that's musically complete unto itself. The system

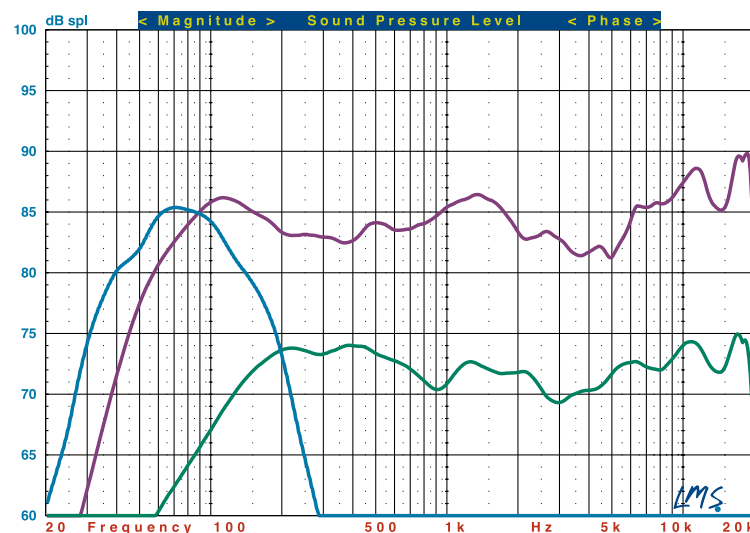
benefits from addition of a sub for music playback, but only a little.

This Bryston system was a provocative one. The Mini A monitor rated alone is a five-star speaker, though the AC-1 Micro, if rated separately, would be at least a full notch below the very best I've heard. A fifth Mini A functioning as an upright center channel would have likely garnered the system a perfect five; something

for shoppers to consider. As for the subwoofer, the Model A Sub was as good a 10-incher as I've ever heard, which it ought to be at that price. On the whole, while this Bryston setup is fine for movies, at heart it's truly a music lover's system. ♦

Audio editor Mark Fleischmann is also the author of the annually updated book *Practical Home Theater* (quietriver-press.com).

Test Bench Bryston Mini A Speaker System



MINI A (purple) +2.41/−3.68 dB, 200 Hz to 10 kHz; −3 dB @ 66 Hz, −6 dB @ 54 Hz; impedance minimum 6.24 ohms @ 4.0 kHz, phase angle −42.67° @ 114 Hz; sensitivity 85 dB, 500 Hz to 2 kHz.

AC-1 MICRO (green) +2.04/−2.67 dB, 200 Hz to 10 kHz; −3 dB @ 115 Hz, −6 dB @ 92 Hz; impedance minimum 7.51 ohms @ 263 Hz, phase angle −44.50° @ 139 Hz; sensitivity 86.5 dB, 500 Hz to 2 kHz.

MODEL A SUB (blue) Close-miked response, normalized to level @ 80 Hz: lower −3 dB @ 45 Hz, −6 dB @ 35 Hz, upper −3 dB @ 118 Hz with crossover switch set to 150 Hz.—MJP

SPECS

Mini A: 6.5 in aluminum-cone woofer, 3 in aluminum-cone midrange, 1 in titanium-dome tweeter; 8.5 x 15.5 x 8.25 in (WxHxD); 11 lb • **AC-1 Micro:** 5.25 in aluminum-cone woofer (2), 1 in titanium-dome tweeter; 17 x 7.5 x 7.5 in (WxHxD); 14.1 lb • **Model A Sub:** 10 in aluminum-cone woofer (2); 400 watts RMS; vented enclosure; line-level RCA in and out, speaker-level in, 12-volt trigger in and out; 17.75 x 17 x 15.25 in (WxHxD); 48 lb

● A trapezoidal footprint minimizes standing waves.

The Mini A monitor is musically complete unto itself.

● The Mini A includes a 3-inch midrange driver in addition to its woofer and tweeter.

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Ultra HDTV on Android

By Al Griffin

Sony XBR-65X850C 3D LCD Ultra HDTV

PRICE \$2,600

IS IT SAFE YET TO BUY A 4K TV?

Manufacturers want us to think so, even though it seems that there's always some new hitch to make consumers wary that the set they buy today will be an expensive doorstop a year or two down the road. For example, the first few 4K TVs lacked an HDMI 2.0 interface—a necessity if you wanted your set to be compatible with future 60-fps Ultra HD content like sports. When the next generation of 4K sets came out, there was a question of whether the HDMI 2.0 interface would support HDCP 2.2 content protection—a necessity if you wanted to watch copy-protected Ultra HD movies.

Now it's 2015, and set makers are finally selling TVs that are ready to handle all (or most) of the UHD content you throw at them (the meager amount that exists, that is). They have HDMI 2.0 ports with HDCP 2.2, along with digital tuners that are presumably ready to receive future UHDTV broadcasts. If your Internet connection is sufficiently high-speed, they can also stream 4K from providers like Netflix. The only thing that many new sets aren't compatible with at present is the High Dynamic Range (HDR) content that's supposed to be available from Netflix and on UHD Blu-ray (when that ultimately arrives).

It's not HDR-compatible, but Sony's new 65-inch XBR-65X850C—at \$2,600, one of the company's more affordable 4K offerings—has almost everything you need to get up and running with Ultra HD. I say almost everything because the sample I

AT A GLANCE

+ Plus

- Accurate color
- Good contrast
- Android TV smart UI

— Minus

- So-so shadow detail
- Below-average picture uniformity
- Doesn't include 3D glasses

received for review didn't include Netflix as part of its streaming options, despite the presence of a big, centrally located Netflix button on the remote control. (The Netflix app has since been added.) Otherwise, it has Sony's proprietary Triluminos technology (not nanocrystals, Sony says), to deliver a vivid, expanded color range—as well as 10-bit color compliance for the inputs and new, advanced 4K X-Reality Pro upscaling. It also has Android TV for its smart OS, with accompanying features such as Google Play movie/music streaming, voice-activated content search, and Google Cast for “throwing” app-based content from your computer or Android/iOS portable to the TV.

The XBR-65X850C's edge-lit LCD screen is surrounded by a vanishingly thin black bezel. The accompanying stand looked alarmingly slight at first, though the set was sturdy enough once I got it situated on my TV table. An array of control buttons is located on the set's back panel, along with four HDMI 2.0 and two USB ports. Sony doesn't include active 3D

glasses, though you can buy them online for \$50 each—ouch.

The smallish remote control is nothing special. It does its job OK, but I would have preferred one with a backlit keypad. Along with that Netflix button, it has a control labeled Home that launches the Android TV interface. Sony also provides a touchpad remote control that lets you navigate menus by sliding a thumb across the pad's surface. And then there's Sony's TV SideView Android/iOS app, which combines program guide info with remote commands if you'd prefer to control the TV from your smartphone or tablet.

RATING

Sony XBR-65X850C 3D LCD Ultra HDTV

2D Performance ★★★★★

3D Performance ★★★★★

Features ★★★★★

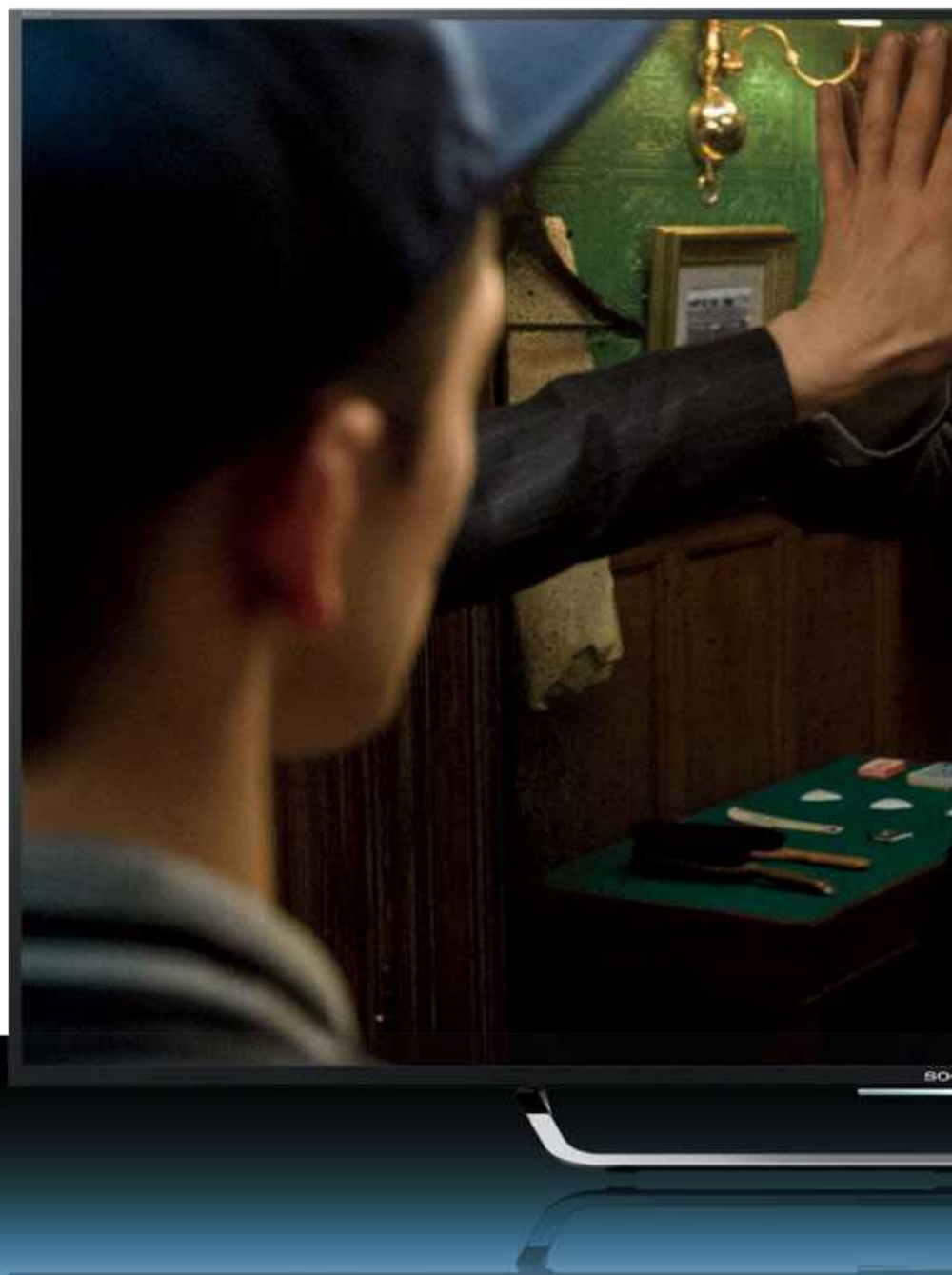
Ergonomics ★★★★★

Value ★★★★★

Having spent years watching Sony lag behind in the smart TV race, it was refreshing to hit the Home button on this set's remote and have the screen light up with the clean, colorful Android TV user interface—a huge improvement over what Sony offered in the past. Along with Netflix and the Google app suite mentioned above, the XBR-65X850C has Amazon Instant Video, Vudu, and Pandora. It's also “DirecTV Ready,” with RVU functionality, so DirecTV subscribers can access recordings and other features from a Genie HD DVR located in another room. Netflix streaming on the XBR-65X850C supports 4K playback. Unfortunately, the same does not apply for Amazon Instant Video (coming soon, according to Sony). I was also disappointed that PlayStation Now game streaming was not yet available.

Setup

The XBR-65X850C provides the usual slew of picture presets. Cinema Pro was strikingly accurate



● The edge-lit LCD screen is surrounded by an ultra-thin bezel.

THE VERDICT

Sony's mid-line 4K TV delivers decent performance for its price and features a new Android TV interface.

out of the box. (Tweaks I made to the TV during the calibration process improved only slightly on what Cinema Pro delivered.) Adjustments include a gamma slider, an Advanced Contrast Enhancer (a form of edge-lit "local dimming"), Color Space options (among them was BT.709, DCI, and BT.2020), and a 10-point color temperature adjustment—the first I've seen on a Sony TV.

As usual with Sony TVs, there are plenty of picture detail enhancements, including Reality Creation/Resolution. The Motion menu, meanwhile, has adjustable settings for motion Smoothness/Clearness. Preset modes include True Cinema, which does a straight 5:5 pulldown of 24p film-based content, and Smooth, which delivers the best motion resolution of the various settings, though with noticeable soap-opera effect.

Performance

While the XBR-65X850C had plenty of brightness on tap, along with

impressive measured contrast, its shadow detail wasn't as good as what I've seen from other Sony TVs over the past few years. The upshot was that some shadowy scenes looked flat. However, the majority of images came across as fairly punchy. For example, when I viewed a nighttime scene from *Life of Pi* where the young Pi Patel watches phosphorescent jellyfish float in a pitch-black sea, stars in the background were a vivid white, and the sea and sky both came across deep and dark.

Screen uniformity is an issue with the XBR-65X850C. Instead of the usual Dynamic LED Dimming backlight control that we've seen on many other Sony sets with an edge-lit backlight, this one has frame dimming, which apparently dims the full backlight on dark scenes as opposed to modulating specific backlight zones. I'm not sure if the set's frame-dimming tech was the problem here, but the screen's vertical edges looked noticeably brighter than its center on a number



HDTV

SONY XBR-65X850C 3D LCD ULTRA HDTV

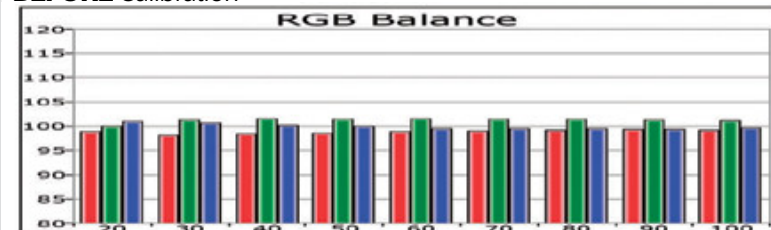
PRICE: \$2,600 (3D glasses \$50 ea)

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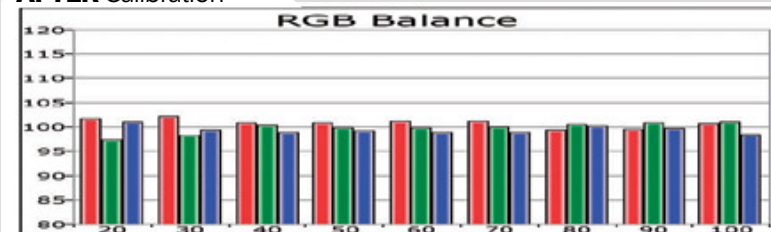
Test Bench

Sony XBR-65X850C 3D LCD Ultra HDTV

BEFORE Calibration



AFTER Calibration



FULL-ON/FULL-OFF Contrast Ratio: 34,150:1

FOR the picture settings plus additional details on calibration and video-processing tests for this review, go to soundandvision.com/TestBench.

THE measurements here were made using CalMAN measurement software from SpectraCal, together with a Photo Research PR-650 color meter and DVDO AVLab 4K test signal generator.

PRE-CALIBRATION measurements were made in the Cinema Pro preset at the default settings. Post-calibration measurements were made in the same mode. With the Sony XBR-65X850C's Advanced Contrast Enhancement mode set to High, its black level measured 0.001 foot-lamberts and peak white 34.15, for a contrast ratio of 34,150:1. With Advanced Contrast Enhancement switched off, black level measured 0.052 ft-L and peak white 37.45 ft-L, for a contrast ratio of 720:1. The Sports mode's default settings delivered the highest peak brightness at 86.4 ft-L.

BEFORE calibration, the Sony's grayscale was fairly even at all brightness levels. The Delta E of its pre-cal grayscale averaged out to an impressive 2.2; calibration improved that a bit to 1.6, with a high of 3.5 at 20% brightness. (Delta E is a figure of merit that indicates how closely a display adheres to the Rec. 709 HD color standard. Experts generally agree that levels below 3 are visibly indistinguishable from perfect color tracking.)

THE Delta E of the Sony's color points in the Cinema Pro preset default settings averaged an OK 3.7. Calibration didn't result in any appreciable change, since the set lacks a color management system that would have allowed adjustment of this parameter.

WITH the -2 Gamma preset selected, gamma in the Cinema Pro mode post-calibration averaged 2.2, remaining linear throughout the full brightness range.

THE Sony passed all of our standard- and high-def video-processing tests, MA HD (jaggies) excepted. It also passed our clipping and luminance/chrominance multiburst tests.—AG

of movies I watched. With sports, news, and well-lit sitcoms, however, screen uniformity issues weren't a distraction.

As with other Sony TVs I've tested that feature the company's Triluminos tech, colors looked accurate, but with an appealing extra hint of richness.

● The accompanying stand is small but sturdy.

TEST REPORT

On the Stephen Hawking biopic *The Theory of Everything*, the XBR-65X850C did a great job of capturing the gray, brown, and blue garb of the Cambridge University students, as well as the dark wood interiors of the classrooms and nearby pubs. While the film's hues remained fairly muted and period-faithful throughout, in a scene where Stephen and wife-to-be Jane attend the university's May Ball, the colorful decorations and gowns worn by the revelers looked robust and bright.

4K and 3D

The Sony's upconversion was for the most part very good, though as usual with the 4K TVs I've evaluated, it was one-upped by the performance of the Oppo BDP-105D universal player I



● Sony includes a hard-button remote and a smaller touchpad model.

used for testing. To check out actual native 4K, I downloaded to Sony's FMP-X10 4K movie server the latest film by Neill Blomkamp, *Chappie*, about an innocent robot who gets hijacked by gangsters for ill purposes. The 4K picture looked crisp and noise-free—exactly what you'd expect from an ultra high-def source. Elements such as the texture of clothing, fine text displayed on computer screens, and the robot's HUD-like vision came through with exceptional detail.

When I strapped on Sony's somewhat flimsy, battery-powered, active 3D glasses to watch a few scenes from *Pacific Rim*, images looked solid and had good depth. The only problem I encountered was a double image when subtitles appeared onscreen during exchanges in Japanese.



SPECS

Dimensions (WxHxD, Inches): 19.5 x 7.75 x 18.25 • **Weight (Pounds):** 31
• **Video Inputs:** HDMI 2.0 (2; 1 with HDCP 2.2) • **Other:** LAN (1), RS-232C, IR, DC 12V (2), USB (SW upgrades only)



● Four HDMI 2.0 and two USB ports are located on the back panel.

Otherwise, the Sony's 3D picture was satisfyingly bright, especially when I selected the High 3D glasses brightness mode.

Conclusion

Sony's mid-level XBR-65X850C Ultra HDTV offers decent overall performance at a reasonable price—for a 65-inch 4K model, that is. And the company's new Android TV UI is a big step up in the smart TV

department. Also on the plus side, this set has accurate out-of-the-box color and good contrast, and its video upconversion made nearly everything I watched look crisp. Shadow detail and picture uniformity were two areas where it fell short of other Sony sets I've reviewed, but depending on the content, I found myself regularly drawn in by the XBR-65X850C's picture. ♦

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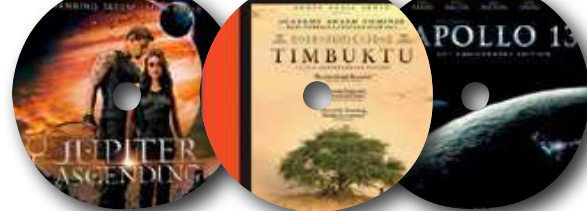
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Entertainment Reviews in High Definition



BLU-RAY

Kingsman: The Secret Service



Clothes Make the Man



As popular as 007's grittier, more credible exploits have been of late, fans raised on the character's more extreme tendencies have wondered what those movies might be like if he had continued his cheeky, over-the-top evolution. And for them, there's Matthew Vaughn's *Kingsman: The Secret Service*. Here a small but well-funded super-secret organization, independent of government, is populated by consummate gentleman (and lady) spies, quietly risking their lives to save others and maintain peace. Headquartered in a posh Savile Row tailor shop, they have access to impossible high-tech gadgets, bold training, and virtually unlimited resources.

In a first act that closely parallels 2009's *Star Trek*, juvenile delinquent Eggsy (Taron Egerton) is recruited as a Kingsman candidate, like his father before him. While capable, he still has a lot to learn, although one by one he overtakes most of the blue-blooded rivals in his class. But his mentor, Harry (Oscar winner Colin Firth, every inch the action hero) is called away to investigate the dubious beneficence of quirky billionaire Valentine (Samuel L. Jackson), currently bankrolling the biggest



BLU-RAY

STUDIO: Fox, 2015

ASPECT RATIO: 2.39:1

AUDIO FORMAT:

DTS-HD Master Audio 7.1

LENGTH: 129 mins.

MPAA RATING: R

DIRECTOR: Matthew Vaughn

STARRING: Colin Firth, Samuel L. Jackson, Taron Egerton

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★★★★

tech giveaway in history. Behind this apparent generosity, could he have a sinister motive? Ready or not, Eggsy will have to don his bespoke suit and do his part to save the world.

Kingsman has a refreshing silliness to it, with a strong undercurrent of humor and a decidedly hip pop-culture awareness. The action, meanwhile, is gleefully excessive, at times cartoonish (it's based upon a graphic novel by Mark Millar and Dave Gibbons), including violence that is clearly deserving of the R rating. One particular sequence set in a church might drop your jaw and perhaps inspire diverting daydreams in a twisted few during some long, slow Sunday service.

The movie was shot digitally and is given a solid 2.39:1 Blu-ray presentation. You might notice a

few brief instances of mild streakiness and minor loss of detail, especially in fast motion or in shots with heavy digital manipulation, but overall the image is extremely pleasing, with deep, delicious colors. In sweeping crowd scenes we can count every last homicidal maniac, and the precise focus pulls reveal the very deliberate layers of drama unfolding within a scene.

The dynamic adventure is set to the booming beat of Henry Jackman and Matthew Margeson's music, and a palpable low-end *thump* is evident in the DTS-HD Master Audio 7.1 soundtrack when characters are beating one another to death with their bare hands. There's a nifty, bassy surround effect when we hear Harry's disembodied voice through a hidden speaker. Other stylized sonic illusions artfully simulate characters' disoriented mental states. Front-to-back directionality is effortless and convincing, while echoes are discretely mixed into the rears. I found the dialogue difficult to understand at times, but that was a consequence of heavy accents, in no way a reflection upon the recording or mastering.

The six-part behind-the-scenes documentary runs about an hour and a half if you choose the Play All option, and it's chock-full of tidbits about this fascinating production. The disc also offers three still galleries covering the sets, props, and more. Also included is a redeemable code for a Digital Copy, with several platforms to choose from.

Very much a movie of today while undeniably in touch with the cinematic traditions that shaped it, *Kingsman: The Secret Service* goes beyond Bond to reinvent—and reinvigorate—the spy thriller genre.

● **Chris Chiarella**

The suit is a modern gentleman's armor."

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THE SPONGEBOB MOVIE: SPONGE OUT OF WATER

WHERE NO SPONGE HAS GONE BEFORE

Paramount



Spongebob Squarepants is a fry cook at a popular fast-food diner called The Krusty Krab in the undersea city of Bikini Bottom. The Krusty Krab is famous for a particular burger-type delicacy called The Krabby Patty. They're insanely popular, and the secret formula is kept under lock and key. Unbeknownst to Spongebob and his compatriots, an enterprising surface-dweller pirate named Burger Beard, played with delightful relish and gusto by Antonio Banderas, has found an ancient text that essentially tells the story of the movie you're currently watching. This gives Burger Beard the ability to rewrite the story as it progresses. He decides to steal the secret formula for himself and make a fortune selling Krabby Patties to the human populace. Unbridled chaos ensues, and the sudden depletion of Krabby Patties transforms Bikini Bottom into a post-apocalyptic wasteland. And so Spongebob and his friends must venture to the surface to reclaim his stolen property and restore order to his undersea city. Eat your heart out, *Casablanca*.

This isn't the first time Spongebob has visited the human world, but in *The Spongebob Movie: Sponge Out of Water*, the results have never looked and sounded this good. The HD picture in both the 3D and 2D formats are first rate. Much of the film is done in traditional hand-drawn animation, and the 3D is rendered remarkably well. But when the action moves onto dry land, Spongebob and his friends become CGI characters rendered against a live-action background, and it's here that the 3D truly impresses. The climactic chase scene is such an outrageous feast for the senses, it makes you wish that the live-action segment occupied a larger portion of the film. It literally is a wild ride. The rousing DTS-HD Master Audio admirably suits the hyperactive visuals with an over-amped soundtrack and rousing score that never overpowers the center-channel dialogue.

The supplemental material offers a wealth of bonus content including featurettes, sub-featurettes, interviews, deleted scenes, alternate takes, sing-alongs and a music video. DVD and Digital Copy included.

The Spongebob Movie primarily panders to the kiddies, but adults will also find humor and charm hidden in the cracks and crevices. It won me over after several viewings. Enthusiasts will be impressed with the audio and the superlative visuals enough to give this little juvenile gem a permanent place in their collection.

● Corey Gunnestad



BLU-RAY 3D

STUDIO: Paramount, 2015

ASPECT RATIO: 1.85:1

AUDIO FORMAT:

DTS-HD Master Audio 5.1

LENGTH: 93 mins.

MPAA RATING: PG

DIRECTOR: Paul Tibbitt

STARRING: Antonio Banderas, Clancy Brown, Tom Kenny

PICTURE ★★★★★

3D-NESS ★★★★★

SOUND ★★★★★

EXTRAS ★★★★★



WHILE WE'RE YOUNG

Lionsgate



Forty-four-year-old documentarian Josh Srebnick (Ben Stiller) is slouching towards middle age, sobered by his stalled career and his inability to finish his decade-old magnum opus or sire a child, when he and wife Cornelia (Naomi Watts) are rejuvenated by a mid-20s filmmaker, Jamie (Adam Driver), and his New Age spouse Darby (Amanda Seyfried). The hipster couple becomes a time machine for the Srebnicks, enticing them into forsaking their age-appropriate friends for block parties in Brooklyn and strolls through subway tunnels. Josh embraces Jamie as his lifestyle guru and hopes to become his professional mentor, a quest that becomes the essence of the story. Unfortunately, writer/director Noah Baumbach, who authored 2005's touching *The Squid and the Whale*, doesn't plumb the same emotional depths here, delivering an ersatz variation on a Woody Allen theme. Despite filigreed performances by Driver and Charles Grodin, Stiller rehashes the same shopworn character he's given us in the past, though with less passion than we find in his own productions.

Sam Levy's evocative, intimate cinematography is poorly served by this disc's soft video quality. Fleshtones are variable, occasionally rich and realistic but more often betraying a blanched pallor. Though exterior shots are often natural, interior scenes are mostly dismal and bland. Extremes of black and white are well rendered, offering fine gradations of both light and shadow. Where this transfer really fails is in the resolution of fine detail, evident in the superficial textures of skin, fabric, and surface, a problem exacerbated by the fact that most of this film is shot in shallow focus.

Audio fares much better. We're treated to the sort of subtle sonic

detail that is conspicuously absent in this disc's picture quality. Background noises and atmospheric information are convincingly distributed among front and rear channels, providing a wonderfully enveloping surround environment. Dialogue is distinct and vibrant, a touch of upper bass emphasis adding a welcome dollop of warmth to male voices. The lack of bass and dynamics, however, will put your sound system to sleep.

Extras are limited to a half-dozen vignettes of about five minutes each. Given the interesting location shots, not to mention the all-star cast, a commentary track would have been welcome. A near-miss that should appeal to Woody Allen fans. ● Anthony Chiarella



BLU-RAY

STUDIO: Lionsgate, 2015

ASPECT RATIO: 1.85:1

AUDIO FORMAT:

DTS-HD Master Audio 5.1

LENGTH: 97 mins.

MPAA RATING: R

DIRECTOR: Noah Baumbach

STARRING: Ben Stiller, Naomi Watts, Adam Driver

PICTURE ★★★★★

SOUND ★★★★★

EXTRAS ★★★★★





JUPITER ASCENDING

ALL STYLE, NO SUBSTANCE

Warner Bros.



Born under the stars crossing the Atlantic while her mother immigrated to the United States, Jupiter Jones was told she was destined for great things. Unfortunately, it looked like her destiny was to clean toilets as a poor immigrant teenager in Chicago until Caine, a genetically engineered alien, arrives on Earth to save Jupiter from a band of Keepers (alien hit men). It turns out that Jupiter’s genetic markings label her as intergalactic royalty—she’s the reincarnation of the matriarch of the House Abrasax, who was murdered and somehow reborn on Earth. This upsets the balance of intergalactic politics, and Jupiter’s now in mortal danger.

The Wachowskis became household names when their film, *The Matrix*, burst onto the scene in 1999 and became an instant classic. That’s a film I’ve watched countless times over the years, and I’m still amazed how deep and thought provoking it is. Unfortunately, I can’t say I’ve liked what the Wachowskis have done since, and apart from its terrific visuals and bombastic audio, *Jupiter Ascending* is damn near unwatchable. The characters are paper-thin, and if the Academy had seen Redmayne’s performance before voting for this year’s Oscars, the award would have gone to anyone but him. It may ruin his chances of ever winning an acting award again—except for a Razzie.

Like the green tint found in *The Matrix*, this universe is dominated by a blue hue, and the video encode is absolutely gorgeous. Black levels are consistently deep with well-resolved shadows, and the digitally shot production teems with crisp detail, even in scenes blending live-action with CGI backgrounds. The aggressive Dolby Atmos audio (Dolby TrueHD 7.1 core) is just as impressive; bass hounds will certainly enjoy the ample LFE throughout the movie. The surround presentation is very active, and overhead effects are put to good use with plenty of ship flyovers and frenetic battles that unfortunately overstay their welcome.

Extras include seven featurettes on the characters, production, visual effects, and some further insight to the complicated story line. There’s also a DVD and UltraViolet Digital Copy.

This movie is so bereft of any personality that I couldn’t care less if the hero lived or died. Its only redeeming qualities are that it looks and sounds spectacular on Blu-ray. This is definitely the low point in the Wachowskis’ career. ● David Vaughn



BLU-RAY	
STUDIO:	Warner Bros., 2015
ASPECT RATIO:	2.40:1
AUDIO FORMAT:	Dolby Atmos / TrueHD 7.1
LENGTH:	127 mins.
MPAA RATING:	PG-13
DIRECTOR:	The Wachowskis
STARRING:	Channing Tatum, Mila Kunis, Eddie Redmayne

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★★★★



LADYHAWKE

SHE’S STILL A BEAUTY

Warner Bros.



About a year before Matthew Broderick assumed the greatest role of his career as a hooky-playing teenager named Ferris Bueller, he collaborated with director Richard Donner and a superlative supporting cast on a medieval fantasy adventure film called *Ladyhawke*. When I learned that *Ladyhawke* was finally being released on Blu-ray, I bristled at the probability that Warner Bros. would work another slap-dash rush job like they did with *Goodfellas* and *Unforgiven*. I’m elated to be proven wrong. The Warner Archive Collection has given *Ladyhawke* a full restoration, and the results are magnificent. All previous home video versions from VHS to Laserdisc to DVD were shoddy disappointments in picture and sound quality, which is why my expectations were low. A good portion of this film features low-light interiors and nighttime scenes involving dark forests, and the visual clarity of those sequences was always a muddled mess. You didn’t like it, but you got used to it.

Vittorio Storaro’s exquisite cinematography is more breathtaking than ever. There’s a slow-motion shot of the hawk flying low over a lake, lightly dipping the tips of her wings into the water as she flies in the morning light; it’s some of the most beautiful imagery ever captured on film. And those low-light sequences exhibit excellent sharpness and detail. It’s as if someone finally turned on the lights.

The soundtrack has been remastered from Dolby Digital 5.1 to a thoroughly engaging DTS-HD Master Audio 5.1. While it’s not as spatially immersive in the surround speakers as more current releases, they’ve still worked wonders with it and it is truly the best it has ever sounded. There’s good directionality from the front speakers, particu-

larly with thundering hoof beats and clashing swords, but they and Andrew Powell’s exceptional score never overwhelm the center channel dialogue track.

My only disappointment is its lack of supplemental material. I was hoping at least for a retrospective audio commentary with Richard Donner, but only the theatrical trailer has been included. Curiously, the main menu is also devoid of a chapter search.

Ladyhawke is one of my favorite films from the ’80s, and I’m grateful to the Warner Archive Collection for giving it its full due. I sincerely hope they continue the practice. And if this film has somehow escaped your notice, now is the perfect time to give it a chance. It’s a gem, you won’t regret it. ● Corey Gunnestad



BLU-RAY	
STUDIO:	Warner Bros., 1985
ASPECT RATIO:	2.40:1
AUDIO FORMAT:	DTS-HD Master Audio 5.1
LENGTH:	121 mins.
MPAA RATING:	PG-13
DIRECTOR:	Richard Donner
STARRING:	Matthew Broderick, Rutger Hauer, Michelle Pfeiffer

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★★★★



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APOLLO 13

GROUND CONTROL TO MAJOR TOM

Universal



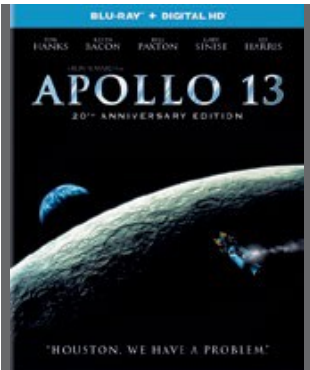
Apollo 13 launched on April 11, 1970, to a world unconcerned. Manned space flights were routine and no longer covered on TV. It wasn't until a fateful explosion left the crew potentially stranded in space that anyone cared about the mission and its three-man crew. Ron Howard's 1995 historical docudrama about the ill-fated mission won two Oscars for its taut editing and its brilliant sound design. Tom Hanks' portrayal of Jim Lovell catapulted him into the stratosphere as a serious dramatic actor, and Bill Paxton also put in one of the strongest performances of his career as Fred Haise.

Apollo 13 was restored in 4K from the original 35mm film elements and digitally remastered on Blu-ray in an AVC 1080p transfer. The results are magnificent, with superb contrast, a fine grain structure, and only the slightest hints of softness from a combination of the vintage and production choices. Colors look natural, especially fleshtones, which are spot-on. The blacks of space are deep, and whites of the astronauts' space suits are bright without clipping. The film's archival news broadcasts don't reach the same quality, but not because of the transfer.

Apollo 13's sound mix is brought home in DTS-HD Master Audio 5.1. The dynamic range is staggering, from the silent vacuum of space to the low din of ground control to the booming rumbles of rockets firing. The low end will rattle the floorboards, but it never gets too unwieldy. Occasional directional panning of solid effects into the surround channels makes the mix engulfing, and dialogue is crystal-clear and full throughout the film. The initial *Apollo 13* launch sequence is the showcase audio segment. It rumbles with authority and sends sounds into every channel.

The main event for the extras is the new "*Apollo 13: Twenty Years Later*," which offers up reflections from director Ron Howard and producer Brian Grazer on the production. Other supplements are two commentaries, one with Ron Howard and one with Jim and Marilyn Lovell; "Lost Moon: The Triumph of *Apollo 13*," a classic featurette with Howard; and two classic documentaries on the *Apollo* missions. Rounding out the extras are the theatrical trailer and Universal's U-Control allowing viewers to use an app to access interactive features during the film. Digital HD for iTunes and UltraViolet are also included.

● Brandon A. DuHamel



BLU-RAY	
STUDIO:	Universal, 1995
ASPECT RATIO:	2.35:1
AUDIO FORMAT:	DTS-HD Master Audio 5.1
LENGTH:	140 mins.
MPAA RATING:	PG
DIRECTOR:	Ron Howard
STARRING:	Tom Hanks, Bill Paxton, Kevin Bacon

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★★★★

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TIMBUKTU

BEAUTY, HUMOR, AND JIHADISTS

Cohen Media Group

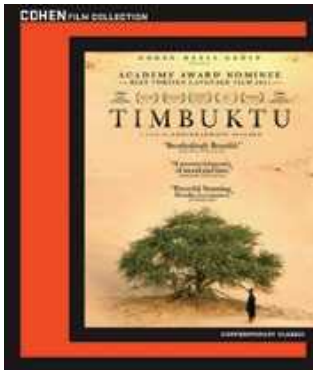


Timbuktu is a film of soaring beauty, sly humor, and urgent sorrow. An Oscar nominee for Best Foreign Film, it should have won if the actual winner, the Polish masterpiece *Ida*, hadn't. Shot in Mauritania, which stands in for Mali (of which Timbuktu is capital), it unspools the tragic ways in which a peaceful village is robbed of family, tradition, and the stuff of a full life when occupied by armed jihadists bearing the black flag of ISIL. At first, the dissonance seems comical: clueless outsiders, proclaiming a ban on music, soccer, and exposed female flesh, while camels block the roads and the locals lounge indifferent. But as the jihadists take over the courts and prisons, and impose their law unimpeded, life devolves into a stream of indignities, though a few—mainly strong, half-mad women—assert their resistance. The film's pace is slow, its scale small, the wreckage spreading from tent to tent; yet this intimacy captures the horrors more deeply than most newsreels. Yet this is not merely propaganda; it's a portrait of humanity or, in the case of the ISIL chieftains, what happens when fanaticism—perhaps at one time well motivated—drains people of their humanity.

The actors, some professionals, most amateurs recruited from refugee camps, are marvelously natural, their faces glowing with a (perhaps sentimentalized but still captivating) grace. The director, Abderrahmane Sissako, who grew up in Mali, has a keen sense for striking images and storytelling. The French-Tunisian cinematographer, Sofian El Fani, ekes vibrant colors from a desert and a rug. I first saw *Timbuktu* at the Angelika in New York City and was struck by how gorgeous it looked.

Cohen Media Group's 1080p transfer captures most of this beauty—the piercing light, the waves of sand, the texture of those rugs—but not all: The colors aren't quite as saturated as the original's; long-shot figures and landscapes are a bit thinner. But if I hadn't seen it in a theater, I would have no complaints.

The extra feature shows Sissako in a very interesting interview at the New York Film Festival. ● Fred Kaplan



BLU-RAY	
STUDIO:	Cohen Media Group, 2014
ASPECT RATIO:	2.39:1
AUDIO FORMAT:	DTS-HD Master Audio 5.1
LENGTH:	96 mins.
MPAA RATING:	PG-13
DIRECTOR:	Abderrahmane Sissako
STARRING:	Ibrahim Ahmed, Abel Jafri, Toulou Kiki

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★★★★



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THE FISHER KING

NO TIME TO WALLOW IN THE MIRE

The Criterion Collection



In this witty and pithy examination of modern New York living circa 1991, director Terry Gilliam posits the absolute necessity to abandon cynicism in order to believe in something and someone. Jeff Bridges is wonderfully arrogant and nasty as stretch-limo-riding radio shock-jock, Jack, who accidentally provokes a desperate caller into entering a restaurant and slaughtering its yuppie patrons. Jack bails on his life, climbing into a bottle of whiskey and a chasm of sarcasm, self-loathing, and self-pity. Parry (another wonderfully manic Robin Williams performance), still traumatized by having seen his beloved blown away in the massacre, has gotten out of a mental institution only to become a crazed homeless person. After a chance meeting, Jack is drawn by his guilt to help Parry on a quest to steal the Holy Grail in the hope of healing both their damaged souls.

Drunken and psychotic characters allow for plentiful colorful Gilliamesque fantasy, but Manhattan is also a character here in all its grunge and glory. A lot of images are purposely down and dingy, narrowly focused, and hazy when depicting the city's underbelly. This can occasionally limit detail that is otherwise good throughout. There's generally a restrained palette of grays, gray-blues, and deep blacks, but many rich blocks of red cheer the picture and daytime park scenes have wide ranges of greens.

In this highly immersive soundtrack "Hit the Road Jack" is terrific in 5.1, full, powerful, and room-filling, as is the ultra-bassy "I've Got the Power." The varied collection of rock, jazz, and rousing classical score by George Fenton bursts forth from all sides, instruments well separated into each channel.

The director's commentary brilliantly and amusingly analyzes the way he (and his team) tried to cinematically express the themes and tell the story. Eleven minutes of deleted scenes add a little but the optional commentary by Gilliam offers more. An hour-long documentary of interviews with him, cast, and crew deals in depth with production. Four more featurettes deal with design challenges, Bridges' experiences illustrated by behind-the-scenes photographs he took on the shoot, Bridges videotaped attempts at being a real shock-jock, and Williams' take on script and filming. Each is original, interesting, and entertaining, adding to a very rounded experience of a sweet and stimulating film.

● Josef Krebs



BLU-RAY	
STUDIO:	The Criterion Collection, 1991
ASPECT RATIO:	1.78:1
AUDIO FORMAT:	DTS-HD Master Audio 5.1
LENGTH:	138 mins.
MPAA RATING:	R
DIRECTOR:	Terry Gilliam
STARRING:	Robin Williams, Jeff Bridges, Mercedes Ruehl

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★★★★

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1776

LET FREEDOM SING

Sony



Released after the crest of Hollywood musicals, the charming 1776 has nonetheless become a patriotic staple for many, thanks in part to frequent small-screen airings since the mid-'70s. An inspirational, educational entertainment, this fact-infused tale of America's final push toward "independency" and the signing of a certain Declaration is elevated by an often profound, often catchy songbook. The narrative focuses on the resolute champion John Adams (William Daniels) and his cohorts, the intellectual Thomas Jefferson (Ken Howard) and the bawdy Ben Franklin (Howard Da Silva), who adds no shortage of comedic nuggets to the mix.

This Blu-ray debut was restored at 4K from the original camera negative, presenting Hunt's preferred Director's Cut with more than 20 minutes reinstated, along with a slightly *more* Extended Cut via seamless branching. The Oscar-nominated cinematography boasts well-balanced 2.35:1 widescreen compositions, with daytime exteriors in particular showing exquisite detail in the precise bricks of Independence Hall, the rough cobblestones of the street, the intricacies of the costumes, and even individual strands in the wigs. Colors too are exceptionally, at times surprisingly vibrant, while the gentle shadows are pleasingly organic and minimally crushed as they give way to deep black.

Although initially released in mono, the original stereo recordings were utilized here to create a restored, remixed DTS-HD Master Audio 5.1 soundtrack. For me, it was best enjoyed at significantly higher volume than usual, a wonderful mix that truly comes alive during the

songs. Spoken dialogue from a cast full of mighty stage voices is dependably crisp and clear, while the vocals for the songs are typically placed in the front channels (we don't want to miss the clever lyrics) and the orchestra fills the surrounds at just the right level. The evenhanded use of the low-frequency effects makes the musical numbers that much more engaging.

A new audio commentary reunites Hunt with stars Daniels and Howard, alongside an archival DVD track from Hunt and screenwriter/playwright Peter Stone. There are also deleted/alternate scenes and the largest collection yet of vintage screen tests. And the UltraViolet Digital Copy lets us declare our independence from physical media. ● Chris Chiarella



BLU-RAY	
STUDIO:	Sony, 1972
ASPECT RATIO:	2.35:1
AUDIO FORMAT:	DTS-HD Master Audio 5.1
LENGTH:	165/168 mins.
MPAA RATING:	Not Rated
DIRECTOR:	Peter H. Hunt
STARRING:	William Daniels, Howard Da Silva, Ken Howard

PICTURE	★★★★★
SOUND	★★★★★
EXTRAS	★★★★★





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What Would Mozart Think?

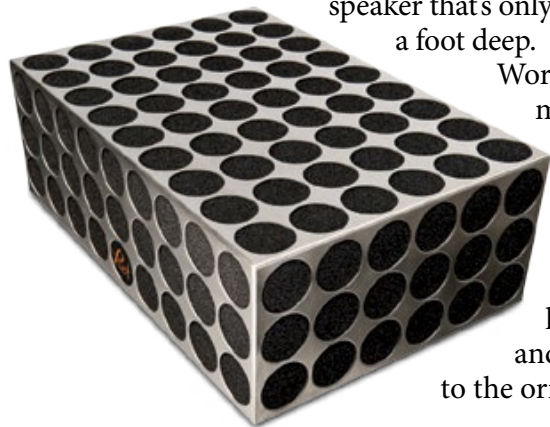
Poet Audio Pandoretta 360° Wireless Sound System

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When I stumbled upon Poet Audio's Pandoretta, I wasn't quite sure what I was looking at. I knew it was a speaker and not some sort of fancy air-filtration system, but what kind of speaker? Was it a new take on Yamaha's Digital Sound Projector with an array of tiny drivers behind all those holes? It didn't occur to me that the stainless steel "grille" might be an elaborate design element. Yet that's exactly what it is.

The heart of Pandoretta is seven speakers arranged in a six-sided, multi-chamber MDF cabinet: a top-mounted woofer, two midrange drivers on angled front panels, and four tweeters—one firing upward, one forward, and one from each side. System power is 170 watts via a Class D amp (20 to 20,000 hertz ± 0.5 decibels)—not too shabby for a speaker that's only 18 inches wide, 6 inches tall, and a foot deep.



Working with a team of engineers and musicians in Vienna, Austrian designer Thomas Feichtner set out to create a musical instrument with a "touch of retro glamour" instead of a conventional speaker system. The system had to be dead simple to operate and deliver sound that was "as close to the original music as possible." The

result is what Poet calls a "phonetic corpus" that radiates sound "nearly 360 degrees."

The Pandoretta is uber plug-and-play, meaning there's no remote control, no app, no user manual, and no Wi-Fi settings to mess with. The little box has only two cleverly disguised controls for volume up/down and on/off and an analog minijack input (concealed in its base) for connection to a TV or other external device. Simply fire up any Bluetooth-enabled smartphone, tablet, or laptop/PC and start streaming—at least that's the promise. The system automatically wakes up when a music signal is detected and goes into standby mode after 10 minutes of inactivity. Pandoretta supports aptX coding for near-CD-quality streaming and has a nook in its base for Apple households that want to connect an AirPort Express for Wi-Fi-based streaming.

Interestingly—and perhaps surprising to many—the system is mono. As Poet puts it, mono is "an ideal alternative" to stereo's confined sweet spot, especially for people who move around while listening to music (which is just about everyone these days).

Poet is planning to launch Pandoretta in the U.S. toward the end of the year. It will sell for about \$3,800, with the optional stand (shown in oak) going for around \$2,200.—*Bob Ankosko*



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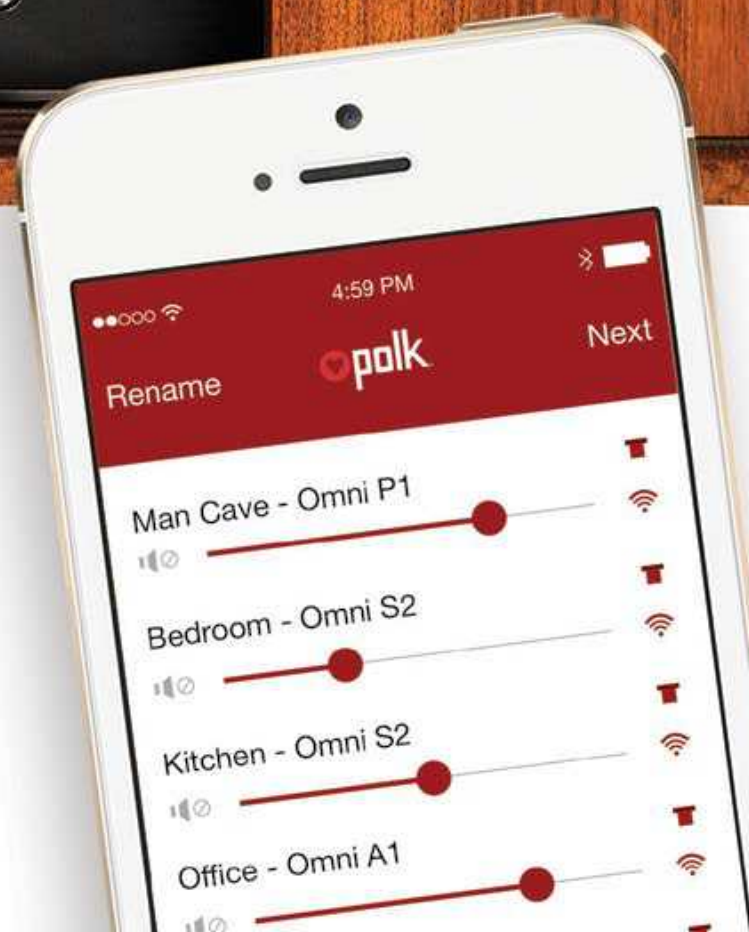
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